DOCUMENT RESUME

ED 131 327 08 CE 009 039

AUTHOR Kaas, Duane; Kahler, Alan A.
TITLE Competencies Needed by Workers in Horticultural Occupations.
INSTITUTION Iowa State Dept. of Public Instruction, Des Moines.; Iowa State Univ. of Science and Technology, Ames. Dept. of Agricultural Education.
SPONS AGENCY Office of Education (DHEW), Washington, D.C.
REPORT NO VT-103-371
PUB DATE 75
NOTE 469p.; Pages iii (Foreword), v (Table of Contents), and Table 30 (Nursery Production Employee Competencies) on page 235 may not reproduce well due to faint, broken type

EDRS PRICE MF-$0.83 HC-$24.77 Plus Postage.
DESCRIPTORS Horticulture; *Job Analysis; *Job Skills; Occupational Information; Occupational Surveys; *Ornamental Horticulture Occupations; State Surveys; Tables (Data); *Task Analysis
IDENTIFIERS Iowa

ABSTRACT

This study was undertaken to identify occupational areas in the horticultural industry and to identify, describe, and categorize the mental and physical skills needed by workers in horticultural occupations. Competency lists were developed for these occupational areas: arborist services, farm and garden supply centers, golf course management, greenhouse production, landscape services, nursery production, park and highway management, retail florist, and wholesale florist. A survey instrument incorporating the competencies was administered to 1,435 Iowa horticulture employees with a response rate of 36%. Data are presented in two parts. Part 1 contains information relative to occupational areas in each of the nine categories and the number of persons employed in each. Geographic distribution of businesses from which responses were received is also provided. Part 2, covering the majority of document, consists of tables which summarize the competencies performed by workers in each of the nine areas. Data are presented in the two broad categories of management and sales and labor. The tables list the tasks and indicate performance frequency by number of employees and by overall percent of employees. (NJ)

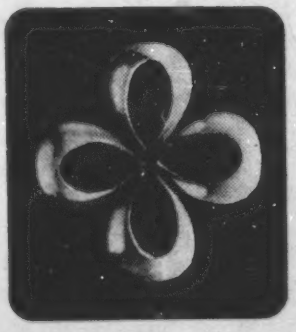
****
* Documents acquired by ERIC include many informal unpublished *
* materials not available from other sources. ERIC makes every effort *
* to obtain the best copy available. Nevertheless, items of marginal *
* reproducibility are often encountered and this affects the quality *
* of the microfiche and hardcopy reproductions ERIC makes available *
* via the ERIC Document Reproduction Service (EDRS). EDRS is not *
* responsible for the quality of the original document. Reproductions *
* supplied by EDRS are the best that can be made from the original. *
****

ED131327

competencies needed by workers in HORTICULTURAL OCCUPATIONS

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY



Developed by the
Department of Agricultural Education at
Iowa State University in cooperation with
the Iowa Department of Public Instruction
under a research project funded by Part C,
P.L.90-576. 1975

2

VT 103 371

ED 009 039

State of Iowa
DEPARTMENT OF PUBLIC INSTRUCTION
Grimes State Office Building
Des Moines, Iowa 50319

STATE BOARD OF PUBLIC INSTRUCTION

Muriel I. Shepard, President, Allison
T. J. Heronimus, Vice-President, Grundy Center
Robert J. Beecher, Creston
Jolly Ann Davidson, Clarinda
Ronald P. Hallock, West Des Moines
Virginia Harper, Fort Madison
Robert G. Koons, Clinton
Georgia A. Sievers, Avoca
John E. van der Linden, Sibley

ADMINISTRATION

Robert D. Benton, State Superintendent and Executive Officer of the State Board of Public Instruction
David H. Bechtel, Administrative Assistant
Richard N. Smith, Deputy State Superintendent

Area Schools and Career Education Branch

Wm. M. Baley, Associate Superintendent
W. O. Schuermann, Director, Career Education Division
James D. Athen, Assistant Director, Career Education Division

H-3323

BEST COPY AVAILABLE

FOREWORD

Efforts of educators to ascertain employment opportunities and job skills needed by workers in horticultural occupations have produced new knowledge in this agricultural industry. This study was undertaken to identify, describe, and categorize the mental and physical skills needed by workers in horticultural occupations as a basis for development of curricula to meet the needs of students desiring employment in this industry.

The study was supported with research funds under Part C, Public Law 90-576, through the Career Education Division of the Iowa Department of Public Instruction and administered through the Iowa State University Agriculture and Home Economics Experiment Station and the Department of Agricultural Education.

Limited copies of this publication are available without charge from the State Director, Career Education Division, Department of Public Instruction, Grimes State Office Building, Des Moines, Iowa 50319.

ACKNOWLEDGMENTS

The Career Education Division, Department of Public Instruction, acknowledges the valuable contribution to this publication by personnel from the Department of Agricultural Education, Iowa State University, Ames, Iowa.

This publication is the final report of a developmental research project funded under part C, Public Law 90-576. The investigation was conducted and the report written by

Duane Kaas
and
Alan A. Kahler

The activity which is the subject of this report was supported in whole or in part by the U. S. Office of Education, Department of Health, Education, and Welfare. However, the opinions expressed herein do not necessarily reflect the position or policy of the U. S. Office of Education, and no official endorsement by the U. S. Office of Education should be inferred.

BEST COPY AVAILABLE

TABLE OF CONTENTS

	Page
Purpose of Study	1
Delimitations of the Study	1
Selection of Sample	2
Development of Survey Instrument	2
Collection of Data	2
Findings	
Part I -- Occupational Distribution	3
Part II -- Competencies Peformed by Horticultural Workers	16
Conclusions and Implications	206

LIST OF TABLES

		Page
Table 1.	Number of Businesses and Employees, Sample Size and Percent of Response by Horticultural Area	4
Table 2.	Number of Full-time and Part-time Employees by Horticultural Area and Occupational Group	14
Table 3.	Number of Businesses, Employees in Sample, and Estimated Employees in Iowa by Horticultural Area	17
Table 4.	Frequency of Performance of Competencies by Arborist Service Management and Sales Employees	18
Table 5.	Frequency of Performance of Competencies by Arborist Service Labor Employees	30
Table 6.	Competencies Most Frequently Peformed by All Arborist Service Employees	41
Table 7.	Frequency of Performance of Competencies by Farm and Garden Supply Management and Sales Employees	42
Table 8.	Frequency of Performance of Competencies by Farm and Garden Supply Labor Employees	52
Table 9.	Competencies Most Frequently Performed by All Farm and Garden Supply Store Employees	63
Table 10.	Frequency of Performance of Competencies by Golf Course Management Employees	67
Table 11.	Frequency of Performance of Competencies by Golf Course Labor Employees	74
Table 12.	Competencies Most Frequently Performed by All Golf Course Employees	81
Table 13.	Frequency of Performance of Competencies by Greenhouse Production Management and Sales Employees	83
Table 14.	Frequency of Performance of Competencies by Greenhouse Production Labor Employees	99
Table 15.	Competencies Most Frequently Performed by All Greenhouse Production Employees	114

Page

Table 16. Frequency of Performance of Competencies by Landscape Service Management and Sales Employees 116

Table 17. Frequency of Performance of Competencies by Landscape Service Labor Employees 131

Table 18. Competencies Most Frequently Performed by All Landscape Service Employees 147

Table 19. Frequency of Performance of Competencies by Park and Highway Management Managerial Employees 149

Table 20. Frequency of Performance of Competencies by Park and Highway Management Labor Employees 157

Table 21. Competencies Most Frequently Performed by All Park and Highway Management Employees 165

Table 22. Frequency of Performance of Competencies by Retail Florist Management and Sales Employees 166

Table 23. Frequency of Performance of Competencies by Retail Florist Labor Employees 175

Table 24. Competencies Most Frequently Performed by All Retail Florist Employees 185

Table 25. Frequency of Performance of Competencies by Wholesale Florist Management and Sales Employees 188

Table 26. Frequency of Performance of Competencies by Wholesale Florist Labor Employees 196

Table 27. Competencies Most Frequently Performed by All Wholesale Florist Employees 204

Table 28. Frequency of Performance of Competencies by Nursery Production Management and Sales Employees 207

Table 29. Frequency of Performance of Competencies by Nursery Production Labor Employees 221

Table 30. Competencies Most Frequently Performed by All Nursery Production Employees 235

LIST OF FIGURES

		Page
Figure 1.	Geographic Distribution of Arborist Businesses From Which Were Received Employee Responses	5
Figure 2.	Georgraphic Distribution of Farm and Garden Supply Stores From Which Were Received Employee Responses	6
Figure 3.	Geographic Distribution of Golf Course Management Businesses From Which Were Received Employee Responses	7
Figure 4.	Geographic Distribution of Greenhouse Production Businesses From Which Were Received Employee Responses	8
Figure 5.	Geographic Distribution of Landscape Businesses From Which Were Received Employee Responses	9
Figure 6.	Geographic Distribution of Nursery Production Businesses From Which Were Received Employee Responses	10
Figure 7.	Geographic Distribution of Park and Highway Management Centers From Which Were Received Employee Responses	11
Figure 8.	Geographic Distribution of Retail Florist Businesses From Which Were Received Employee Responses	12
Figure 9.	Geographic Distribution of Wholesale Florist Businesses From Which Were Received Employee Responses	13

COMPETENCIES NEEDED BY WORKERS IN HORTICULTURAL OCCUPATIONS

Purpose of Study

Educational programs that prepare people for agricultural employment have been broadened in concept to provide training for occupational entry into horticultural occupations. This broadened emphasis has developed, in part, as a result of efforts of educators to determine the employment opportunities and job skills (mental and physical) needed by workers in this agricultural industry. Little, if any, effort has been devoted to analyzing this new knowledge and developing curriculum and course of study guidelines, that would, when implemented, prepare individuals for employment in horticultural occupations.

The central problem of this investigation was to identify, describe, and categorize those mental and physical abilities and skills needed by workers in horticultural occupations. The principal objectives of the study were to:

1. Identify occupational areas in the horticultural industry.
2. Identify and list competencies needed by workers in each horticultural area.
3. Determine most important competencies needed by workers in each horticultural area.
4. Determine common competencies needed by workers in all horticultural areas.

The study was supported with funds provided through the Career Education Division of the Iowa Department of Public Instruction and administered through the Iowa State University Agriculture and Home Economics Experiment Station and the Department of Agricultural Education.

Delimitations of the Study

The study was limited to an investigation of the competencies needed by workers in each of nine horticultural areas in Iowa. These areas included arborist services, farm and garden supply centers, golf course management, greenhouse production, landscape services, nursery production, park and highway management, retail florists, and wholesale florists.

Selection of Sample

Lists of businesses within each of the nine horticultural areas were secured through staff members of the Horticulture Department at Iowa State University. In addition to supplying the lists of businesses, these staff members provided typical occupational groupings of workers within each horticultural area. Managers of each business appearing on the nine lists were contacted and asked to indicate the number of persons they employed in each occupational category within their business. Information provided by these business owners and/or managers was summarized by project staff members. From each of the lists, a sample of workers within each occupational group was drawn for inclusion in the study.

Development of Survey Instrument

The results of previous studies that analyzed the training needs of workers in the horticultural industry were accumulated by project staff members. Based on information supplied by these studies, lists of competencies were developed for each of the nine horticultural areas. These competency lists were submitted to staff members in the Horticulture Department at Iowa State University and selected industry employers and employees for their review and critique. Suggestions made by these individuals were incorporated into the lists and revised lists of competencies were developed.

Each list of competencies was incorporated into a survey instrument. Each instrument (9) was pre-tested on a sample of workers not included in the study to determine the appropriateness and accuracy of the instrument in providing the desired information. Based on the information supplied by the test samples, revisions were made in each instrument and they were printed for use among the sample of workers selected to participate in the study.

Collection of Data

A copy of the appropriate revised survey form was sent to the managers of the businesses from which study participants had been selected. Employers were asked to select workers in their businesses to respond to the survey form and return them to the project staff. Each survey form identifed the occupational area from which the employer was to select his employee(s).

Selected workers were asked to review each competency listed and indicate how often he or she performed the task inherent in each competency. In responding each employee was asked to indicate whether he or she performed the task daily (5), once a week (4),

once a month (3), once a year (2), or never (1). A scale value (5,4, 3,2,1) was assigned to each level of performance and used to assist project staff in analyzing the data.

Information relative to the total number of businesses identified, number of full-time employees reported, number of survey forms sent, number of survey forms returned, percent of sample survey forms returned and percent of total population from which survey forms were returned by horticultural area is provided in Table 1. Geographic distribution of businesses from which responses were received by horticultural area is provided on the following pages in Figures 1 through 9.

Findings

To provide information which meets the requirements of the objectives as stated previously, data in this section are provided in two parts. Part I presents information relative to occupational areas in each of the horticultural areas and the number of persons employed in each area. Part II presents the mental and physical abilities and skills performed by workers in carrying out their job responsibilities.

Part I -- Occupational Distribution

Data presented in Table 2 reveal the number of persons employed in each occupational group within each horticultural area as reported by the businesses who supplied information on the number of workers they employed by occupational groups. It was observed that 61 percent of all employees reported by the responding businesses were full-time employees, whereas 39 percent were part-time employees. It was further observed that for the golf course management and greenhouse production areas 50 percent of the employees worked part-time and for the landscape services and nursery production areas, 65 and 53 percent respectively of the workers were employed part-time.

Comparisons among horticultural areas revealed that the largest number of full- and part-time employees reported were employed in the highway and park management (1775) and nursery production (1744) areas. Of the total number of employees reported, 57.3 percent were employed in these two horticultural areas.

Data in Table 3 projects the number of full-time workers by horticultural areas for the state of Iowa. These projections were based on information provided by operators of businesses in the sample responding to the original request by project staff members relative to the number of workers they employed in their businesses. It was observed that the largest number of estimated workers were employed

Table 1

Number of Businesses and Employees, Sample Size and

Percent of Response by Horticultural Area

Horticultural Area	Businesses Responding	Full-time Employees	Survey Forms Sent	Survey Forms Returned	Percent Response
	N	N	N	N	%
Arborist Services	26	195	120	35	29
Farm and Garden Supply	34	180	110	48	44
Golf Course Management	76	184	144	45	31
Greenhouse Production	79	151	105	38	36
Landscape Services	26	156	132	35	27
Park and Highway Management	27	250	142	69	49
Retail Florists	104	485	258	132	51
Wholesale Florists	25	167	140	24	17
Nursery Production	47	785	284	95	34
Total	444	2553	1435	521	36

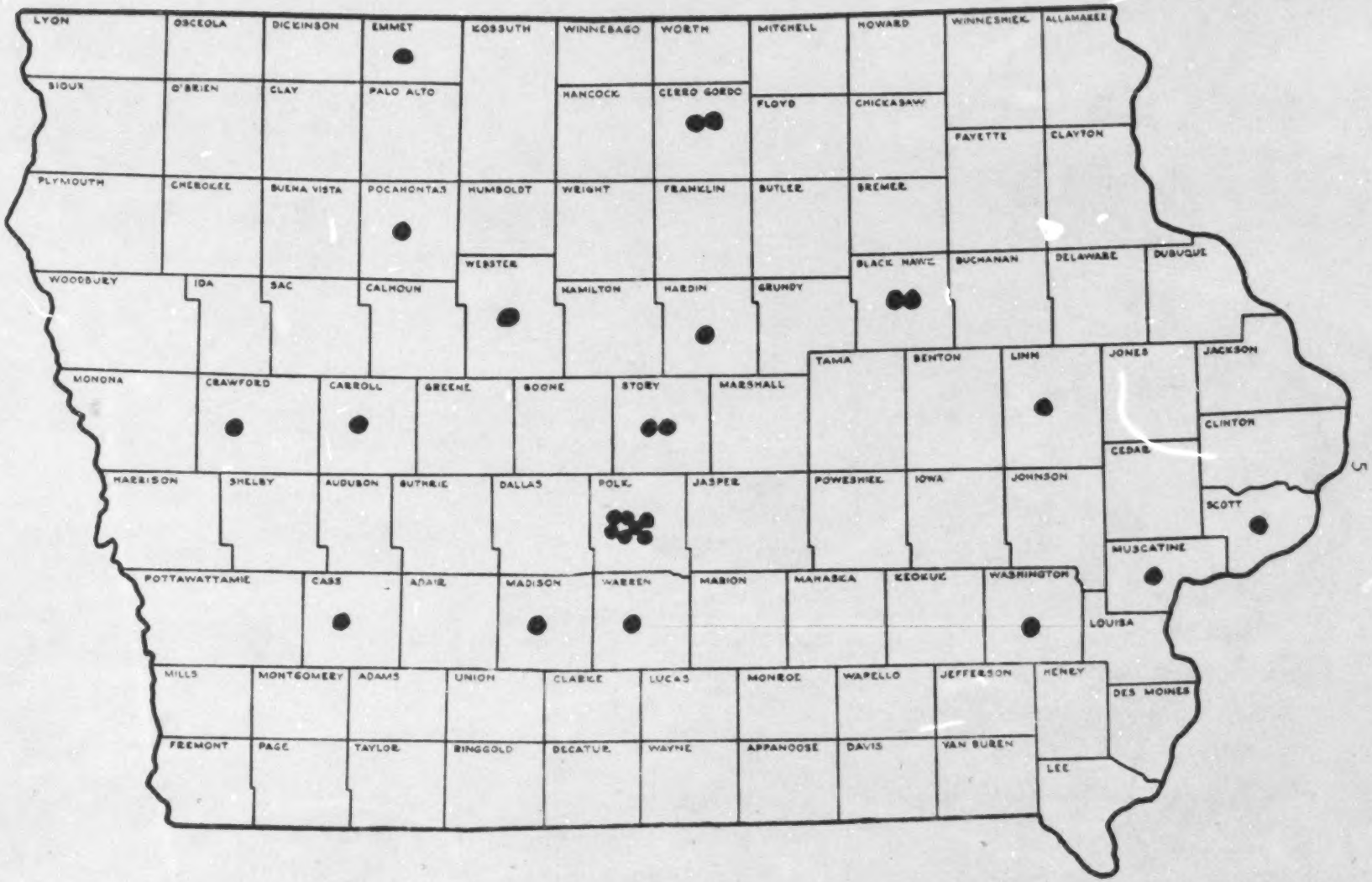


Figure 1. Geographic Distribution of Arborist Businesses From Which Were Received Employee Responses.

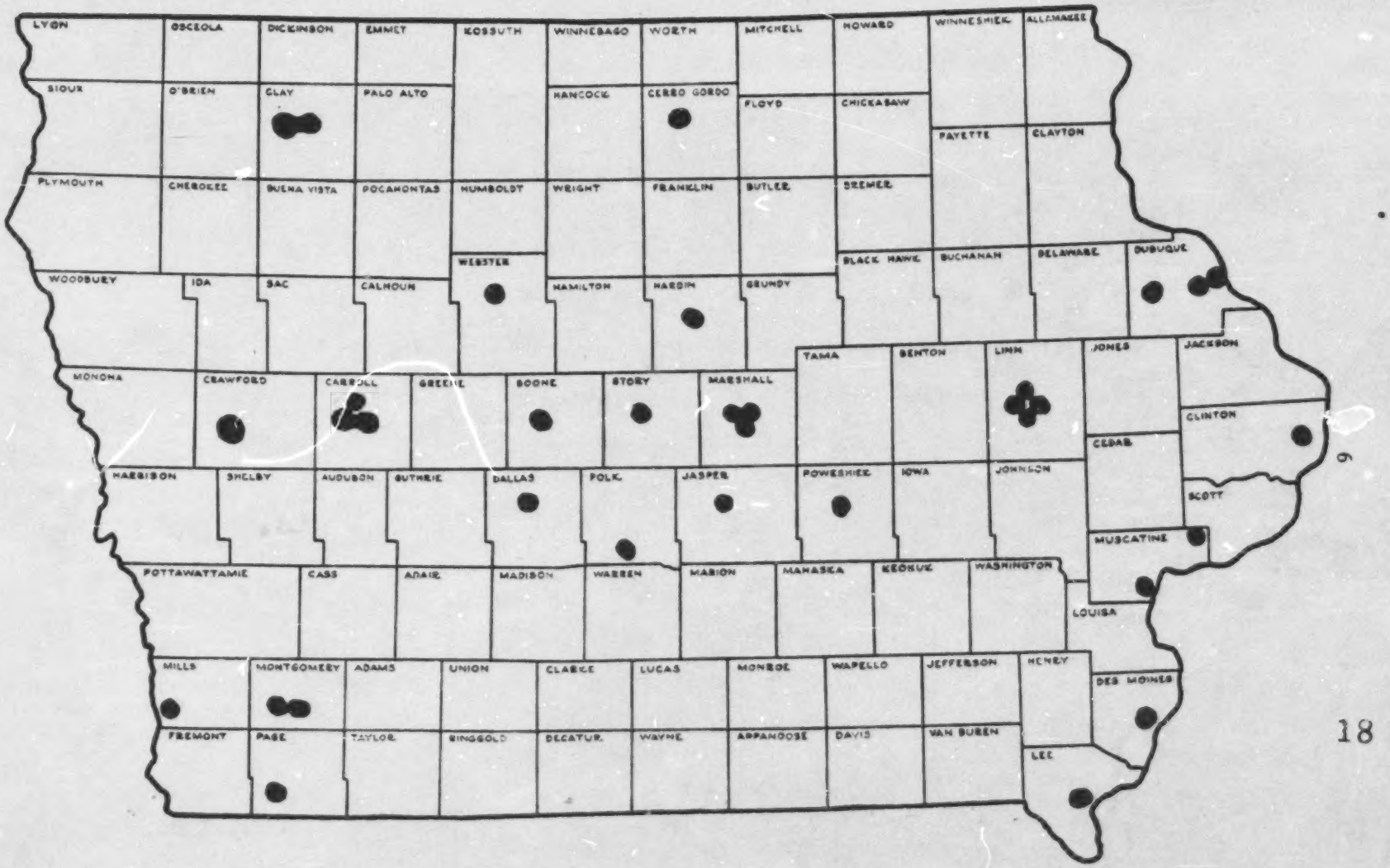


Figure 2. Georgraphic Distribution of Farm and Garden Supply Stores From Which Were Received Employee Responses.

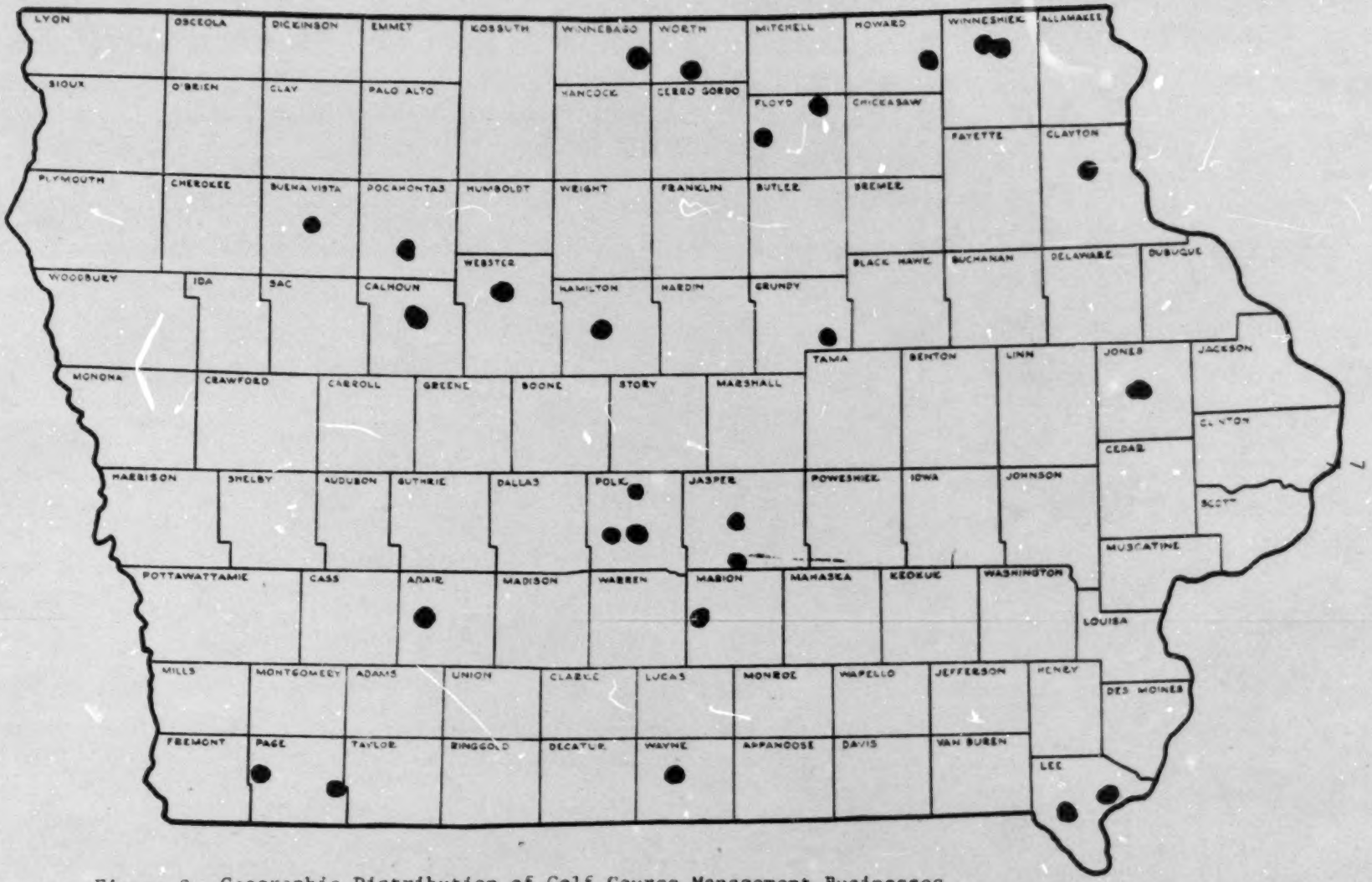


Figure 3. Geographic Distribution of Golf Course Management Businesses From Which Were Received Employee Responses.

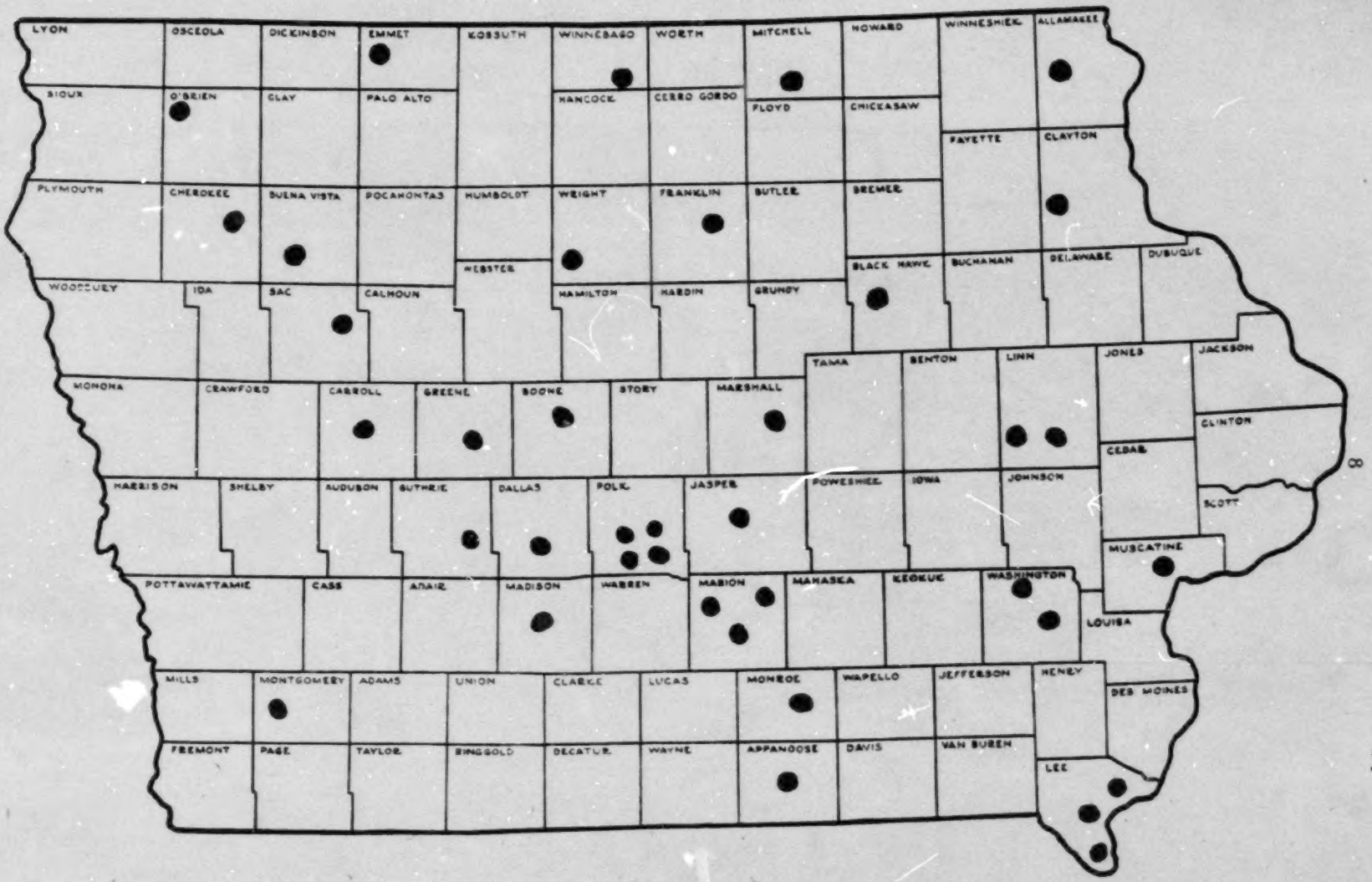


Figure 4. Geographic Distribution of Greenhouse Production Businesses From Which Were Received Employee Responses.

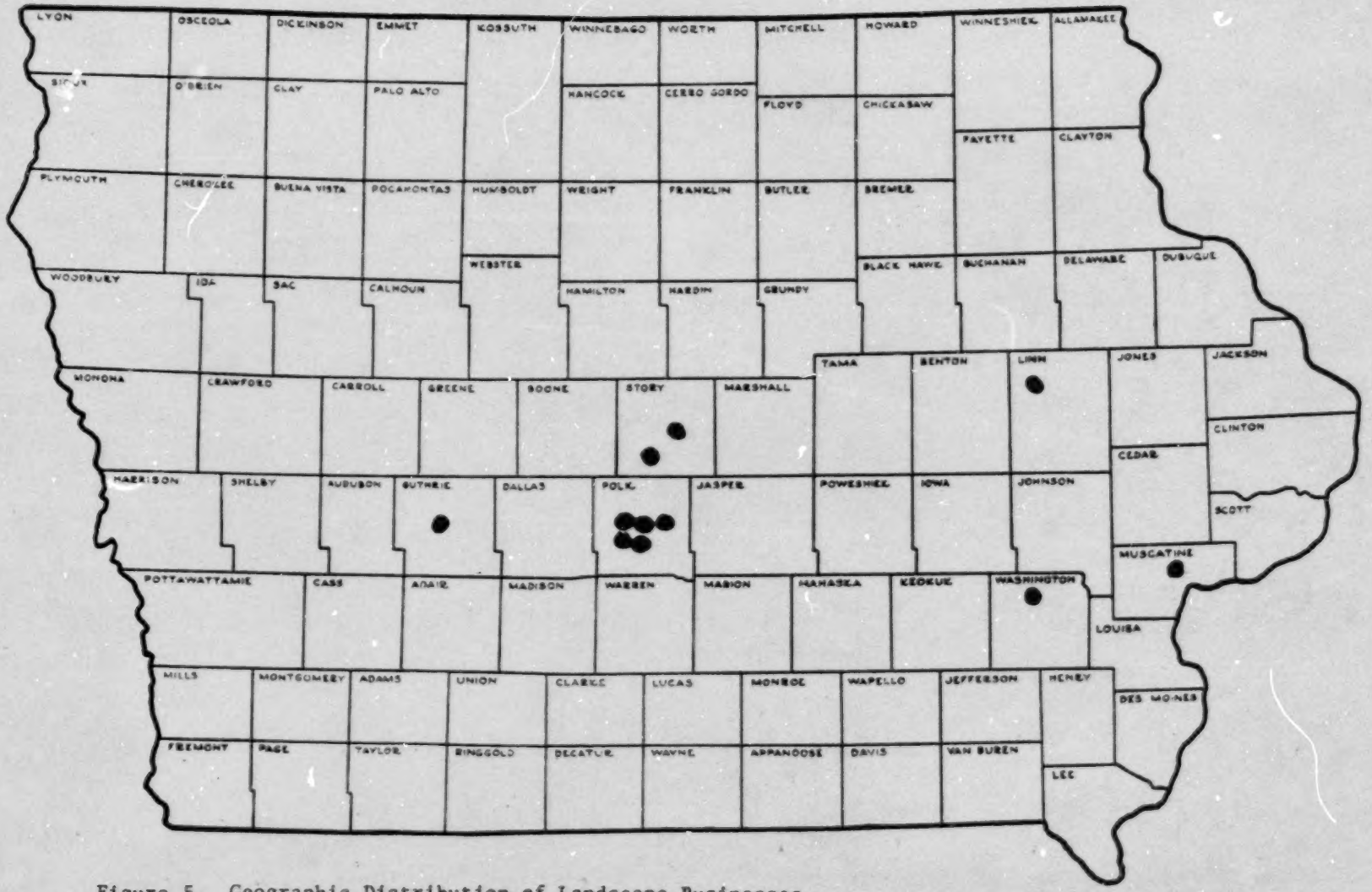


Figure 5. Geographic Distribution of Landscape Businesses From Which Were Received Employee Responses.

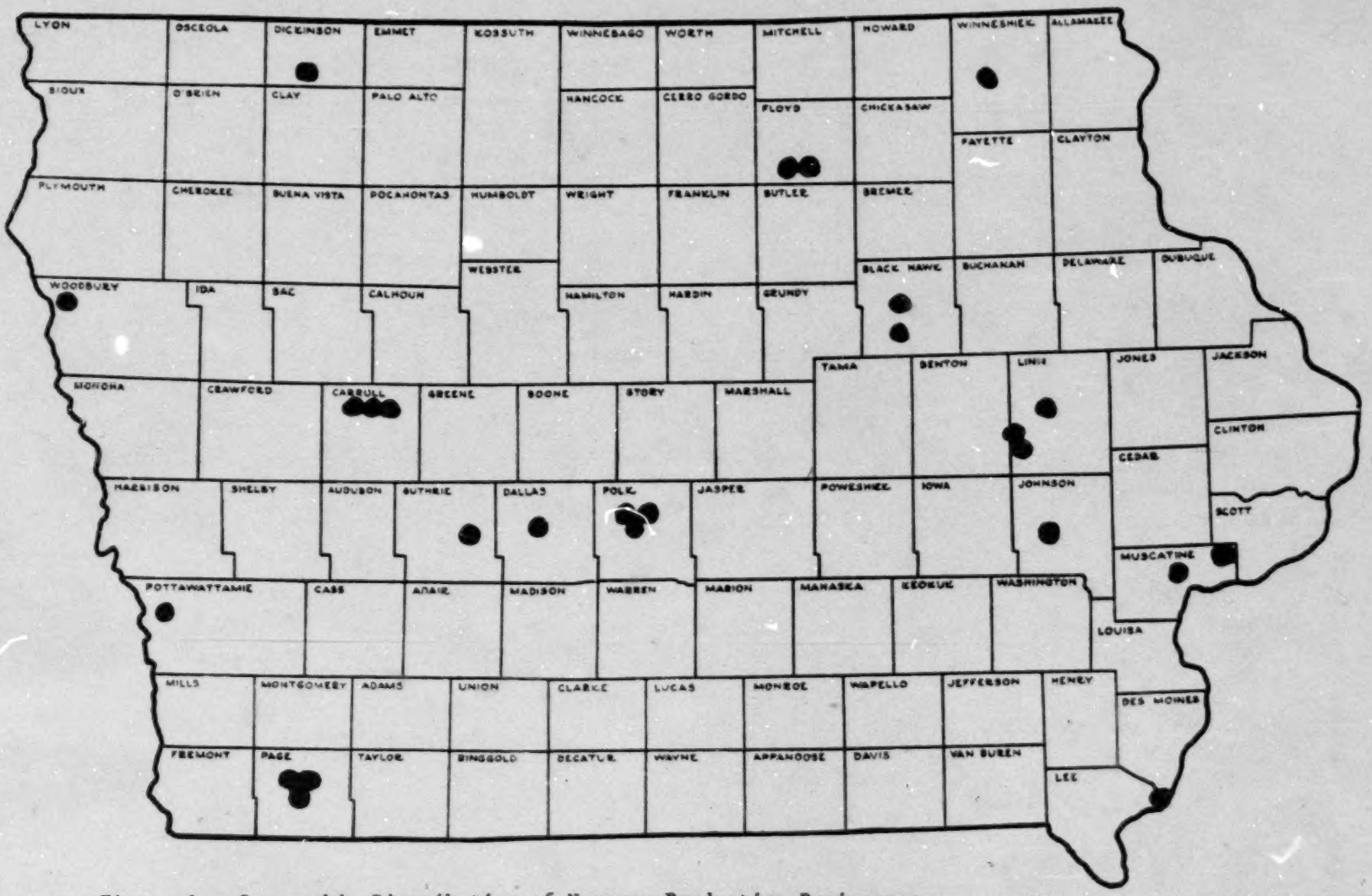


Figure 6. Geographic Distribution of Nursery Production Businesses From Which Were Received Employee Responses.

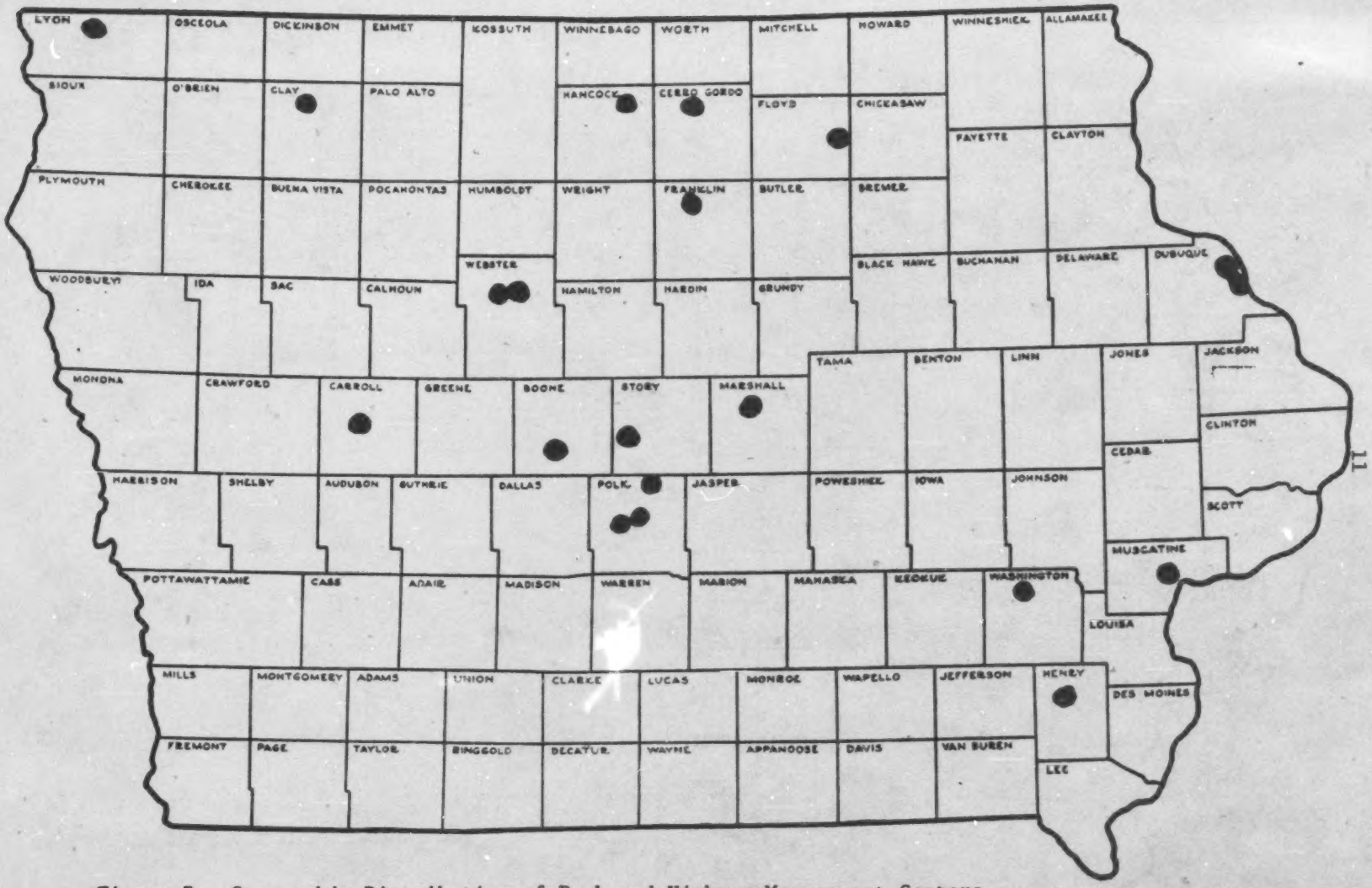


Figure 7. Geographic Distribution of Park and Highway Management Centers From Which Were Received Employee Responses.

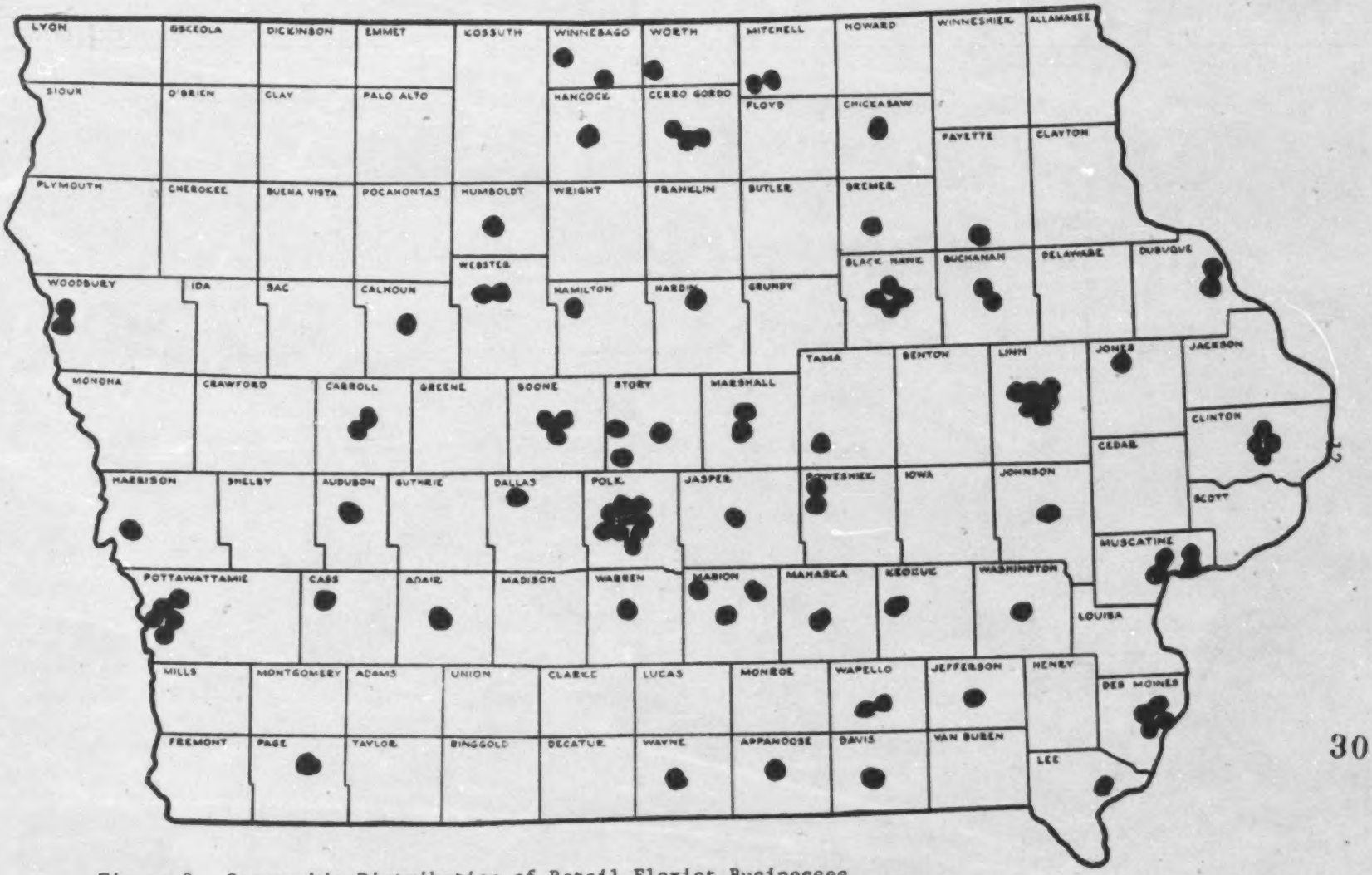


Figure 8. Geographic Distribution of Retail Florist Businesses From Which Were Received Employee Responses.

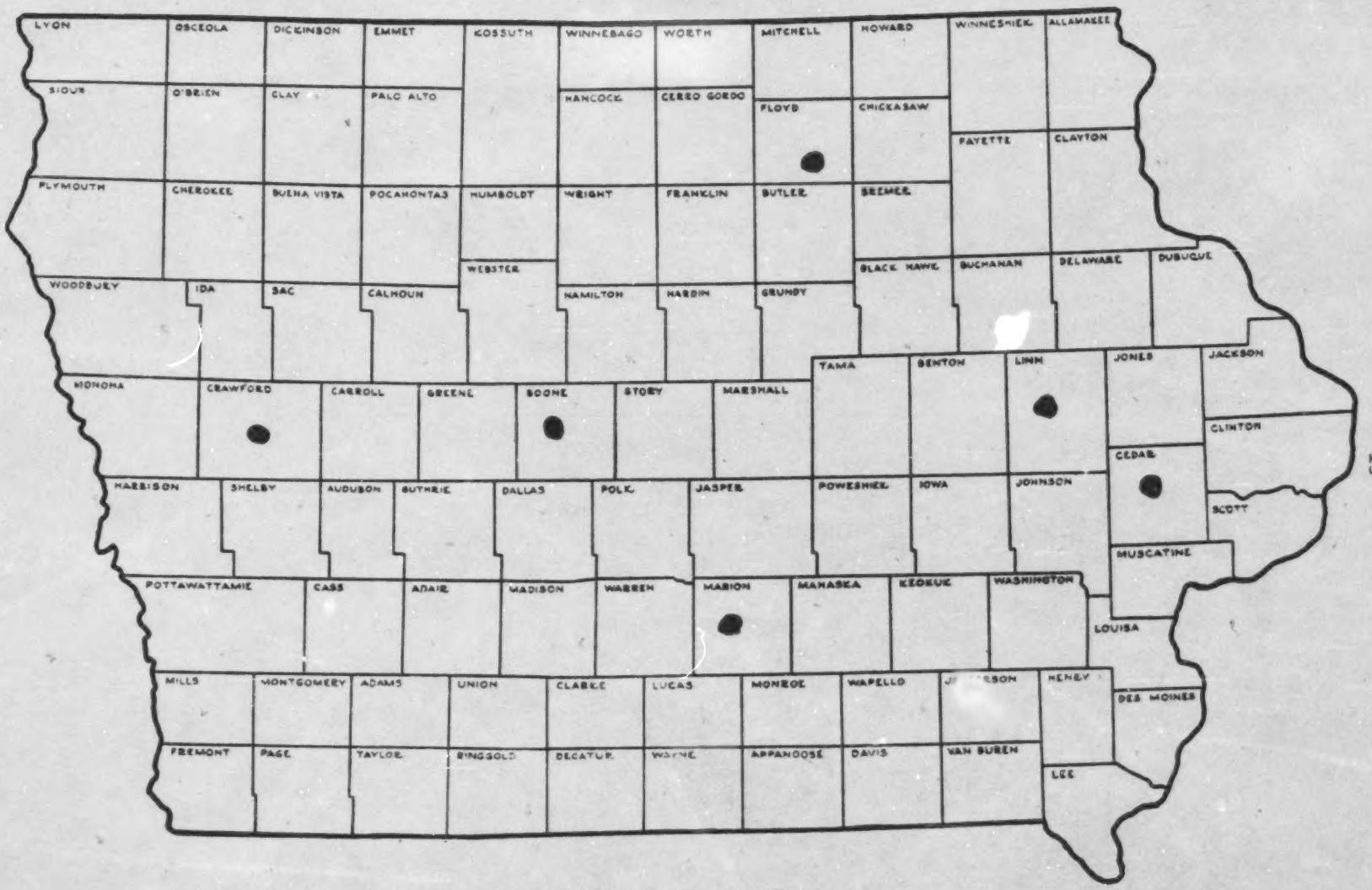


Figure 9. Geographic Distribution of Wholesale Florist Businesses From Which Were Received Employee Responses.

Table 2

Number of Full-time and Part-time Employees

by

Horticultural Area and Occupational Group

Occupation	Full-time Employees	Part-time Employees
	N	N
Arborist Services		
Tree Surgeon	54	8
Tree Surgeon Helper	49	12
Foreman	27	3
Laborer	57	20
Total	187	43
Percent	81	19
Farm and Garden Supply		
Manager	34	1
Assistant Manager	28	1
Sales Clerk	82	72
Secretarial Help	17	4
Accountant	19	4
Total	180	82
Percent	69	31
Golf Course Management		
Course Superintendent	54	10
Equipment Operator	50	24
Greenskeeper	30	18
Laborer, Golf Course	46	134
Landscape Gardener	4	3
Mechanic	8	2
Total	192	191
Percent	50	50
Greenhouse Production		
Manager	25	1
Assistant Manager	14	1
Sales Clerk	30	29
Deliveryman	11	12
Greenhouse Worker	43	94
Grower	15	2
Plant Propagator	3	3
Bedding Plant Grower	3	11
Cut Flower Grower	3	3
Pot Plant Grower	7	4
Total	154	150
Percent	50	50

Occupation	Full-time Employees	Part-time Employees
	N	N
Landscape Services		
Manager	24	1
Assistant Manager	15	4
Landscape Architect	16	4
Salesman	10	10
Laborer	58	218
Truck Driver	14	27
Equipment Operator	14	24
Mechanic	5	2
Total	156	290
Percent	35	65
Highway and Park Management		
Park Manager	22	0
Assistant Manager or Foreman	20	4
Landscape Gardener	2	2
Equipment Operator	1035	75
Mechanic	164	0
Truck Driver	24	0
Laborer	127	270
Tree Trimmer	2	1
Public Relations Personnel	17	2
Landscape Architect	7	1
Total	1420	355
Percent	80	20
Retail Florist		
Manager	86	4
Assistant Manager	31	1
Sales Clerk	82	92
Floral Designer	197	77
Deliveryman	47	62
Accountant	23	26
Secretary	19	13
Total	485	275
Percent	64	36
Nursery Production		
Manager	64	1
Assistant Manager	63	8
Equipment Operator	134	46
Mechanic	19	4
Truck Driver	29	18
Nursery Worker	478	813
Plant Propagator	30	37
Total	817	927
Percent	47	53

Occupation	Full-time Employees	Part-time Employees
	N	N
Wholesale Florist		
Manager	24	1
Assistant Manager	16	0
Bedding Plant Grower	10	15
Pot Plant Grower	32	24
Accountant	8	5
Salesman	24	2
Secretary	9	4
Cut Flower Grower	17	3
Deliveryman	25	14
Buyer	3	0
Total	168	68
Percent	71	29
Total employed in responding businesses	3759	2381
Percent	61	39

in the nursery production (1750) and retail florist areas (1190). The smallest number of workers were employed in the wholesale florist (310), golf course management (350), and greenhouse production (350) areas.

Part II -- Competencies Performed by Horticultural Workers

The following paragraphs and tables summarize the competencies performed by horticultural workers in each of the nine horticultural areas. Due to small numbers employed in various occupational groups and the small response from those groups, the data are presented in two broad occupational categories -- management and sales and laborer.

Data presented in Table 4 reveal the frequency of performance of competencies by arborist service management and sales employees. Those competencies performed most frequently by these workers included supervising employees; designating work assignments; keeping work, storage, and delivery areas neat and clean; and cleaning and sharpening hand tools. Those competencies performed rarely or never by this

Table 3

Number of Businesses, Employees in Sample, and Estimated Employees in Iowa by Horticultural Area

Horticultural Area	Businesses in Iowa	Responding Businesses	Percent of Responding Businesses	Full-time Employees in Sample	Estimated Employees in Iowa
	N	N	%	N	N
Arborist Services	80	26	32.5	195	600
Farm and Garden Supply	81	34	41.9	180	440
Golf Course Management	143	76	53.1	184	350
Greenhouse Production	112	49	43.8	151	350
Landscape Services	67	26	34.2	156	460
Nursery Production	105	47	44.8	785	1750
Park and Highway Management	39	27	69.2	250	370
Retail Florist	255	104	40.8	485	1190
Wholesale Florist	47	25	53.2	167	310
Total	929	414	44.6	2553	5920

Table 4

Frequency of Performance of Competencies

by

Arborist Service Management and Sales Employees

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Sales								
Describe to customers the purposes and characteristics of tree varieties.	N	1	1	2	1	4	9	2.3
	%	11.1	11.1	22.2	11.1	44.4	100	
Identify customer needs and wants.	N	0	2	1	0	6	9	1.9
	%	0.0	22.2	11.1	0.0	66.7	100	
Take orders for sales or service by telephone.	N	2	0	1	1	5	9	2.2
	%	22.2	0.0	11.1	11.1	55.6	100	
Follow-up sales to determine customer satisfaction.	N	0	0	1	0	8	9	1.2
	%	0.0	0.0	11.1	0.0	88.9	100	
Make cost estimates on customer orders.	N	1	0	0	0	8	9	1.4
	%	11.1	0.0	0.0	0.0	88.9	100	
Solicit sales by telephone.	N	1	0	0	1	7	9	1.6
	%	11.1	0.0	0.0	11.1	77.8	100	
Use effective interpersonal relationships in dealing with customers.	N	3	0	0	0	6	9	2.3
	%	33.3	0.0	0.0	0.0	66.7	100	
Prepare advertising materials.	N	0	0	0	1	8	9	1.1
	%	0.0	0.0	0.0	11.1	88.9	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Use supplier advertising materials.	N	1	1	0	0	7	9	1.8
	%	11.1	11.1	0.0	0.0	77.8	100	
Use various types of advertising such as mail, radio and newspaper ads.	N	0	2	0	0	7	9	1.7
	%	0.0	22.2	0.0	0.0	77.8	100	
Interpret tree care instructions to customers.	N	3	1	2	0	3	9	3.1
	%	33.3	11.1	22.2	0.0	33.3	100	
Write-up customer order.	N	2	0	0	1	6	9	2.0
	%	22.2	0.0	0.0	11.1	66.7	100	
Advise customers on tree pest and disease control.	N	1	3	2	0	3	9	2.9
	%	11.1	33.3	22.2	0.0	33.3	100	
Keep records of receipts and expenses.	N	1	0	0	0	8	9	1.4
	%	11.1	0.0	0.0	0.0	88.9	100	
Make out and mail bills to collect accounts due.	N	0	1	1	0	7	9	1.6
	%	0.0	11.1	11.1	0.0	77.8	100	
Check credit references of customers.	N	0	1	0	0	8	9	1.3
	%	0.0	11.1	0.0	0.0	88.9	100	
Perform filing tasks.	N	1	2	0	0	6	9	2.1
	%	11.1	22.2	0.0	0.0	66.7	100	
Perform typing and mailing tasks.	N	2	1	0	0	6	9	2.2
	%	22.2	11.1	0.0	0.0	66.7	100	
Keep employee work records.	N	3	1	0	0	5	9	2.7
	%	33.3	11.1	0.0	0.0	55.6	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Prepare employee payroll.	N	0	1	1	0	7	9	1.6
	%	0.0	11.1	11.1	0.0	77.8	100	
Pay accounts payable.	N	0	0	0	0	9	9	1.0
	%	0.0	0.0	0.0	0.0	100.0	100	
Assist in records audit.	N	0	0	0	1	8	9	1.1
	%	0.0	0.0	0.0	11.1	88.9	100	
Prepare income tax and other government reports.	N	0	0	0	0	9	9	1.0
	%	0.0	0.0	0.0	0.0	100.0	100	
Keep annual depreciation schedule.	N	0	0	1	0	8	9	1.2
	%	0.0	0.0	11.1	0.0	88.9	100	
Keep customer credit records.	N	0	0	1	0	8	9	1.2
	%	0.0	0.0	11.1	0.0	88.9	100	
Use adding machine and/or other tabulation devices in balancing accounts.	N	0	1	0	0	8	9	1.3
	%	0.0	11.1	0.0	0.0	88.9	100	
Keep maintenance records on power equipment.	N	1	1	2	1	4	9	2.2
	%	11.1	11.1	22.2	11.1	44.4	100	
Inventory								
Keep current inventory of plants and materials.	N	1	1	1	2	4	9	2.2
	%	11.1	11.1	11.1	22.2	44.4	100	
Check received merchandise against invoice listings.	N	0	1	0	1	7	9	1.4
	%	0.0	11.1	0.0	11.1	77.8	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Check invoices for math errors.	N	0	0	1	1	7	9	1.3
	%	0.0	0.0	11.1	11.1	77.8	100	
Take annual inventory for tax purposes.	N	0	0	1	0	8	9	1.2
	%	0.0	0.0	11.1	0.0	88.9	100	
Store spare parts, oil, and gas.	N	0	2	2	0	5	9	2.1
	%	0.0	22.2	22.2	0.0	55.6	100	
Keep current inventory of spare parts, oil, and gas.	N	0	0	3	0	6	9	1.7
	%	0.0	0.0	33.3	0.0	66.7	100	
Order replacement and/or new merchandise for sale.	N	3	1	1	0	4	9	2.9
	%	33.3	11.1	11.1	0.0	44.4	100	
Maintenance								
Keep work, storage, and delivery areas neat and clean.	N	4	3	2	0	0	9	4.2
	%	44.4	33.3	22.2	0.0	0.0	100	
Clean and sharpen hand tools.	N	5	0	2	1	1	9	3.8
	%	55.5	0.0	22.2	11.1	11.1	100	
Perform light maintenance of business vehicle, or tractor oil level, tire pressure, battery and radiator water level.	N	2	0	2	1	4	9	2.4
	%	22.2	0.0	22.2	11.1	44.4	100	
Perform minor tune-up of business vehicle or tractor by replacement of spark plugs and ignition points.	N	0	0	3	1	5	9	1.8
	%	0.0	0.0	33.3	11.1	55.6	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Change oil and grease business vehicle or tractor.	N	1	0	1	1	6	9	1.8
	%	11.1	0.0	11.1	11.1	66.7	100	
Repair storage structures.	N	0	1	1	0	7	9	1.6
	%	0.0	11.1	11.1	0.0	77.8	100	
Perform electrical repair of light switches and extension cords.	N	0	1	0	2	6	9	1.6
	%	0.0	11.1	0.0	22.2	66.7	100	
Paint storage buildings.	N	0	0	1	2	6	9	1.4
	%	0.0	0.0	11.1	22.2	66.7	100	
Perform plumbing repair by replacement of worn gaskets or valves.	N	0	0	1	2	6	9	1.4
	%	0.0	0.0	11.1	22.2	66.7	100	
Clean and oil electric motors.	N	0	0	3	1	5	9	1.8
	%	0.0	0.0	33.3	11.1	55.6	100	
Order repair parts for vehicles and/or other equipment.	N	1	0	5	0	3	9	2.6
	%	11.1	0.0	55.6	0.0	33.3	100	
Maintain and repair small gas engines (e.g. lawn mowers).	N	1	3	1	2	2	9	2.9
	%	11.1	33.3	11.1	22.2	22.2	100	
Care for climbing equipment.	N	2	2	2	0	3	9	3.0
	%	22.2	22.2	22.2	0.0	33.3	100	
Clean and repair dusters and sprayers.	N	2	1	1	1	4	9	2.6
	%	22.2	11.1	11.1	11.1	44.4	100	
Maintain and repair power trimmers and tree removers.	N	2	0	2	1	4	9	2.4
	%	22.2	0.0	22.2	11.1	44.4	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Preparation and Planting Trees								
Determine tree variety to plant.	N	2	1	1	3	2	9	2.8
	%	22.2	11.1	11.1	33.3	22.2	100	
Identify time of year to plant.	N	0	2	1	4	2	9	2.3
	%	0.0	22.2	11.1	44.4	22.2	100	
Dig holes to set trees.	N	0	1	0	6	2	9	2.0
	%	0.0	11.1	0.0	66.7	22.2	100	
Set trees.	N	0	0	1	3	5	9	1.6
	%	0.0	0.0	11.1	33.3	55.6	100	
Take soil tests.	N	0	1	1	1	6	9	1.7
	%	0.0	11.1	11.1	11.1	66.7	100	
Lime and fertilize trees at planting.	N	0	1	0	4	4	9	1.8
	%	0.0	11.1	0.0	44.4	44.4	100	
Water set trees.	N	0	1	0	3	5	9	1.7
	%	0.0	11.1	0.0	33.3	55.6	100	
Dig up trees to be transplanted.	N	0	1	0	5	3	9	1.9
	%	0.0	11.1	0.0	55.6	33.3	100	
Ball trees to be shipped.	N	1	0	1	2	5	9	1.9
	%	11.1	0.0	11.1	22.2	55.6	100	
Support newly planted trees by guying or staking.	N	2	0	0	3	4	9	2.2
	%	22.2	0.0	0.0	33.3	44.4	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Add compost or peat moss at planting.	N	2	0	1	4	2	9	2.6
	%	22.2	0.0	11.1	44.4	22.2	100	
Tree Care and Maintenance								
Diagnose tree pests, diseases and other disorders.	N	1	2	3	1	2	9	2.9
	%	11.1	22.2	33.3	11.1	22.2	100	
Spray trees for pests and disease.	N	3	1	2	0	3	9	3.1
	%	33.3	11.1	22.2	0.0	33.3	100	
Prune and trim shade trees.	N	2	2	2	2	1	9	3.2
	%	22.2	22.2	22.2	22.2	11.1	100	
Trim trees for utility line clearance.	N	2	1	1	1	4	9	2.6
	%	22.2	11.1	11.1	11.1	44.4	100	
Provide winter protection for trees.	N	2	0	1	4	2	9	2.6
	%	22.2	0.0	11.1	44.4	22.2	100	
Remove broken and storm damaged limbs.	N	1	0	2	4	2	9	2.3
	%	11.1	0.0	22.2	44.4	22.2	100	
Fill tree cavities.	N	0	1	1	2	5	9	1.3
	%	0.0	11.1	11.1	22.2	55.6	100	
Safeguard trees in parking lots.	N	2	1	0	1	5	9	2.3
	%	22.2	11.1	0.0	11.1	55.6	100	
Remove brush and seeds.	N	1	1	1	3	3	9	2.3
	%	11.1	11.1	11.1	33.3	33.3	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)1	Once a Year (2)	Never (1)	Total	Mean
Use block and tackle to remove trees.	N	2	2	1	0	4	9	2.8
	%	22.2	22.2	11.1	0.0	44.4	100	
Fell trees.	N	1	0	1	3	4	9	2.0
	%	11.1	0.0	11.1	33.3	44.4	100	
Cord wood to sell.	N	0	1	1	2	5	9	1.8
	%	0.0	11.1	11.1	22.2	55.6	100	
Remove tree stumps.	N	3	0	0	1	5	9	2.4
	%	33.3	0.0	0.0	11.1	55.6	100	
Haul and dispose of branches to refuse.	N	4	0	1	1	3	9	3.1
	%	44.4	0.0	11.1	11.1	33.3	100	
Climb trees.	N	1	0	3	2	3	9	2.3
	%	11.1	0.0	33.3	22.2	33.3	100	
Cable and brace weak trees or limbs.	N	1	1	1	1	5	9	2.1
	%	11.1	11.1	11.1	11.1	55.6	100	
Test soil.	N	0	1	3	1	4	9	2.1
	%	0.0	11.1	33.3	11.1	44.4	100	
Fertilize established trees.	N	1	0	1	5	2	9	2.2
	%	11.1	0.0	11.1	55.6	22.2	100	
Control undesirable growth with herbicides or growth retardants.	N	3	0	3	0	3	9	3.0
	%	33.3	0.0	33.3	0.0	33.3	100	
Identify trees.	N	3	1	1	1	3	9	3.0
	%	33.3	11.1	11.1	11.1	33.3	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Operate cherry picker.	N	3	0	0	0	6	9	2.3
	%	33.3	0.0	0.0	0.0	66.7	100	
Management								
Report and pay federal, state, and local taxes.	N	1	0	2	0	6	9	1.9
	%	11.1	0.0	22.2	0.0	66.7	100	
Understand and comply with business laws.	N	0	1	1	0	7	9	1.6
	%	0.0	11.1	11.1	0.0	77.8	100	
Administer social security and other employee benefit programs.	N	1	0	1	0	7	9	1.7
	%	11.1	0.0	11.1	0.0	77.8	100	
Identify labor needs.	N	1	1	1	1	5	9	2.1
	%	11.1	11.1	11.1	11.1	55.6	100	
Recruit employees.	N	1	2	0	2	4	9	2.3
	%	11.1	22.2	0.0	22.2	44.4	100	
Interview and select employees.	N	5	0	1	0	3	9	3.4
	%	55.6	0.0	11.1	0.0	33.3	100	
Designate employee work assignments.	N	6	0	0	0	3	9	3.7
	%	66.7	0.0	0.0	0.0	33.3	100	
Supervise employees.	N	5	2	1	0	1	9	4.1
	%	55.6	22.2	11.1	0.0	11.1	100	
Train new employees.	N	4	1	0	0	4	9	3.1
	%	44.4	11.1	0.0	0.0	44.4	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Evaluate employee performance.	N	2	2	1	0	4	9	2.8
	%	22.2	22.2	11.1	0.0	44.4	100	
Perform personnel actions such as promoting or firing.	N	0	2	1	0	6	9	1.9
	%	0.0	22.2	11.1	0.0	66.7	100	
Establish employee wages, hours, and working conditions.	N	0	1	1	0	7	9	1.6
	%	0.0	11.1	11.1	0.0	77.8	100	
Determine business credit needs.	N	0	0	0	0	9	9	1.0
	%	0.0	0.0	0.0	0.0	100.0	100	
Locate sources of, and secure credit.	N	0	0	0	0	9	9	1.0
	%	0.0	0.0	0.0	0.0	100.0	100	
Determine need for and purchase comprehensive business insurance.	N	0	0	1	1	7	9	1.3
	%	0.0	0.0	11.1	11.1	77.8	100	
Select and purchase equipment and expendables not for sale.	N	0	1	2	0	6	9	1.8
	%	0.0	11.1	22.2	0.0	66.7	100	
Determine kinds and amounts of plants to stock.	N	0	2	1	1	5	9	2.0
	%	0.0	22.2	11.1	11.1	55.6	100	
Identify and select producers and suppliers of plants and equipment.	N	1	1	1	0	6	9	2.0
	%	11.1	11.1	11.1	0.0	66.7	100	
Establish and enforce safety regulations.	N	2	0	0	1	6	9	2.0
	%	22.2	0.0	0.0	11.1	66.7	100	
Allocate monies in preparing working budget.	N	0	0	1	1	7	9	1.3
	%	0.0	0.0	11.1	11.1	77.8	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Analyze the business enterprises on cost and return basis.	N	1	0	1	0	7	9	1.7
	%	11.1	0.0	11.1	0.0	77.8	100	
Participate in horticulture trade organizations.	N	0	0	1	0	8	9	1.2
	%	0.0	0.0	11.1	0.0	88.9	100	
Plan business advertising.	N	1	0	1	0	7	9	1.7
	%	11.1	0.0	11.1	0.0	77.8	100	
Negotiate sales and/or service contracts.	N	0	0	2	1	6	9	1.6
	%	0.0	0.0	22.2	11.1	66.7	100	
Analyze jobs and contracts on a cost basis.	N	1	0	1	1	6	9	1.8
	%	11.1	0.0	11.1	11.1	66.7	100	
Determine which jobs to contract.	N	0	0	1	2	6	9	1.4
	%	0.0	0.0	11.1	22.2	66.7	100	
Develop relationships with contractors to obtain jobs and sub-contracts.	N	0	0	1	1	7	9	1.3
	%	0.0	0.0	11.1	11.1	77.8	100	

group included preparing advertising materials, paying accounts payable, assisting in records audit, preparing income tax and other government report forms, determining business credit needs, and locating sources of and securing credit. It was interesting to note that for this group of employees, out of 108 competencies listed, only 13 were performed once a month or more.

Cleaning and sharpening hand tools; performing light maintenance of business vehicle or tractor--oil level, tire pressure, battery, and radiator water levels; caring for climbing equipment; pruning and trimming shade trees; removing broken and storm damaged limbs; removing brush and seeds; felling trees; hauling and disposing of branches to refuse; climbing trees; and identifying trees were activities most often performed by arborist service labor employees. These observations were made based on data presented in Table 5. Those competencies never performed by this group included checking credit references of customers, paying accounts payable, keeping annual depreciation schedules, keeping customer credit records, performing plumbing repair by replacement of worn gaskets or valves, cleaning and oiling electric motors, and determining business credit needs.

Competencies most frequently performed by all arborist employees are presented in Table 6. It is interesting to note that all competencies listed were those which were most typically performed by labor employees. These findings probably resulted from the fact that there were 26 persons included in this horticultural area that were classified as laborers.

Competencies and frequency of their performance by farm and garden supply management and sales employees are presented in Table 7. Employees indicated that they performed the following activities on a weekly basis--identifying customer needs and wants, taking orders for sales or service by telephone, describing to customers the purposes and qualities of merchandise for sale, answering customer inquires by telephone, using effective interpersonal relationships in dealing with customers, and using cash register or other sales recording devices. Those little performed competencies included preparing income tax and other government reports, keeping annual depreciation schedules, performing minor tune-up of business vehicles or tractors by replacement of spark plugs and ignition points, changing oil and greasing business vehicle or tractor, determining need for and purchasing comprehensive business insurance, and participating in horticultural trade organizations.

Keeping records of receipts and expenses, performing filing tasks, performing typing and mailing tasks, and using adding machine and/or other tabulation devices in balancing accounts were those competencies performed most often by farm and garden supply labor employees. These observations were made based on data presented in Table 8. It was noted that competencies in the maintenance and management areas were those performed least by these workers.

Table 5

Frequency of Performance of Competencies

by

Arborist Service Labor Employees

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Sales								
Describe to customers the purposes and characteristics of tree varieties.	N	5	7	3	2	9	26	2.9
	%	19.2	26.9	11.5	7.7	34.6	100	
Identify customer needs and wants.	N	6	5	4	0	11	26	2.8
	%	23.1	19.2	15.4	0.0	42.3	100	
Take orders for sales or service by telephone.	N	3	4	2	0	17	26	2.1
	%	11.5	15.4	7.7	0.0	65.4	100	
Follow-up sales to determine customer satisfaction.	N	2	2	3	1	18	26	1.8
	%	7.7	7.7	11.5	3.8	69.2	100	
Make cost estimates on customer orders.	N	1	3	4	0	18	26	1.8
	%	3.8	11.5	15.4	0.0	69.2	100	
Solicit sales by telephone.	N	2	0	3	0	21	26	1.5
	%	7.7	0.0	11.5	0.0	30.8	100	
Use effective interpersonal relationships in dealing with customers.	N	6	3	2	1	14	26	2.5
	%	23.1	11.5	7.7	3.8	53.8	100	
Prepare advertising materials.	N	0	0	3	1	22	26	1.3
	%	0.0	0.0	11.5	3.8	84.6	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Use supplier advertising materials.	N	3	1	3	1	18	26	1.8
	%	11.5	3.8	11.5	3.8	69.2	100	
Use various types of advertising such as mail, radio, and newspaper ads.	N	0	2	3	0	21	26	1.5
	%	0.0	7.7	11.5	0.0	80.8	100	
Interpret tree care instructions to customers.	N	4	2	6	1	13	26	2.3
	%	15.4	7.7	23.1	3.8	50.0	100	
Write-up customer orders.	N	1	2	4	1	18	26	1.7
	%	3.8	7.7	15.4	3.8	69.2	100	
Advise customers on tree pest and disease control.	N	6	2	5	3	10	26	2.7
	%	23.1	7.7	19.2	11.5	38.5	100	
Records								
Keep records of receipts and expenses.	N	2	1	2	0	21	26	1.6
	%	7.7	3.8	7.7	0.0	80.8	100	
Make out and mail bills to collect accounts due.	N	0	0	2	0	24	26	1.2
	%	0.0	0.0	7.7	0.0	92.3	100	
Check credit references of customers.	N	0	0	1	0	25	26	1.1
	%	0.0	0.0	3.8	0.0	96.2	100	
Perform filing tasks.	N	2	3	0	0	21	26	1.7
	%	7.7	11.5	0.0	0.0	80.8	100	
Perform typing and mailing tasks.	N	2	1	0	1	22	26	1.5
	%	7.7	3.8	0.0	3.8	84.6	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Keep employee work records.	N	5	2	0	1	18	26	2.0
	%	19.2	7.7	0.0	3.8	69.2	100	
Prepare employee payroll.	N	0	1	1	0	24	26	1.2
	%	0,0	3.8	3.8	0.0	92.3	100	
Pay accounts payable.	N	0	0	0	1	25	26	1.0
	%	0.0	0.0	0.0	3.8	96.2	100	
Assist in records audit.	N	0	0	1	1	24	26	1.1
	%	0.0	0.0	3.8	3.8	92.3	100	
Prepare income tax and other government reports.	N	0	0	0	1	25	26	1.0
	%	0.0	0.0	0.0	3.8	96.2	100	
Keep annual depreciation schedule.	N	0	0	0	1	25	26	1.0
	%	0.0	0.0	0.0	3.8	96.2	100	
Keep customer credit records.	N	0	0	0	0	26	26	1.0
	%	0.0	0.0	0.0	0.0	100.0	100	
Use adding machine and/or other tabulation devices in balancing accounts.	N	0	0	1	0	25	26	1.1
	%	0.0	0.0	3.8	0.0	96.2	100	
Keep maintenance records on power equipment.	N	0	1	1	0	24	26	1.2
	%	0.0	3.8	3.8	0.0	92.3	100	
Inventory								
Keep current inventory of plants and materials.	N	0	1	2	3	20	26	1.4
	%	0.0	3.8	7.7	11.5	76.9	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Check received merchandise against invoice listings.	N	1	0	3	1	21	26	1.4
	%	3.8	0.0	11.5	3.8	80.8	100	
Check invoices for math errors.	N	0	0	3	0	23	26	1.2
	%	0.0	0.0	11.5	0.0	88.5	100	
Take annual inventory for tax purposes.	N	0	0	0	2	24	26	1.1
	%	0.0	0.0	0.0	7.7	92.3	100	
Store spare parts, oil, and gas.	N	1	0	1	0	24	26	1.2
	%	3.8	0.0	3.8	0.0	92.3	100	
Keep current inventory of spare parts, oil, and gas.	N	1	0	0	0	25	26	1.2
	%	3.8	0.0	0.0	0.0	96.2	100	
Order replacement and/or new merchandise for sale.	N	1	2	2	0	21	26	1.5
	%	3.8	7.7	7.7	0.0	80.8	100	
Maintenance								
Keep work, storage, and delivery areas neat and clean.	N	4	4	7	4	7	26	2.8
	%	15.5	15.5	26.9	15.4	26.9	100	
Clean and sharpen hand tools.	N	8	9	1	1	7	27	3.4
	%	30.8	34.6	3.8	3.8	26.9	100	
Perform light maintenance of business vehicle, or tractor - oil level, tire pressure, battery, and radiator water levels.	N	9	3	4	0	10	26	3.0
	%	34.6	11.5	15.4	0.0	38.5	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Perform minor tune-up of business vehicle or tractor by replacement of spark plugs and ignition points.	N	0	3	2	0	21	26	1.5
	%	0.0	11.5	7.7	0.0	80.8	100	
Change oil and grease business vehicle or tractor.	N	0	0	6	2	18	26	1.5
	%	0.0	0.0	23.1	7.7	69.2	100	
Repair storage structures.	N	0	0	1	3	22	26	1.2
	%	0.0	0.0	3.8	11.5	84.6	100	
Perform electrical repair of light switches and extension cords.	N	0	0	0	2	24	26	1.1
	%	0.0	0.0	0.0	7.7	92.3	100	
Paint storage buildings.	N	0	0	0	3	23	26	1.1
	%	0.0	0.0	0.0	11.5	88.5	100	
Perform plumbing repair by replacement of worn gaskets or valves.	N	0	0	0	0	26	26	1.0
	%	0.0	0.0	0.0	0.0	100.0	100	
Clean and oil electric motors.	N	0	0	0	1	25	26	1.0
	%	0.0	0.0	0.0	3.8	96.2	100	
Order repair parts for vehicles and/or other equipment.	N	2	2	1	2	19	26	1.7
	%	7.7	7.7	3.8	7.7	73.1	100	
Maintain and repair small gas engines (e.g. lawn mowers).	N	5	1	0	0	20	26	1.9
	%	19.2	3.8	0.0	0.0	76.9	100	
Care for climbing equipment.	N	12	2	0	4	8	26	3.2
	%	46.2	7.7	0.0	15.4	30.8	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Clean and repair dusters and sprayers.	N	3	0	4	4	15	26	1.9
	%	11.5	0.0	15.4	15.4	57.7	100	
Maintain and repair power trimmers and tree removers.	N	3	3	0	4	16	26	2.0
	%	11.5	11.5	0.0	15.4	61.5	100	
Preparation and Planting Trees								
Determine tree variety to plant.	N	3	4	2	7	10	26	2.3
	%	11.5	15.4	7.7	26.9	38.5	100	
Identify time of year to plant.	N	3	1	3	8	11	26	2.1
	%	11.5	3.8	11.5	30.8	42.3	100	
Dig holes to set trees.	N	5	2	1	7	11	26	2.3
	%	19.2	7.7	3.8	26.9	42.3	100	
Set trees.	N	4	2	3	8	9	26	2.4
	%	15.4	7.7	11.5	30.8	34.6	100	
Take soil tests.	N	1	2	1	3	19	26	1.6
	%	3.8	7.7	3.8	11.5	73.1	100	
Lime and fertilize trees at planting.	N	2	1	1	6	16	26	1.7
	%	7.7	3.8	3.8	23.1	61.5	100	
Water set trees.	N	1	2	1	6	16	26	1.7
	%	3.8	7.7	3.8	23.1	61.5	100	
Dig up trees to be transplanted.	N	1	2	2	8	13	26	1.8
	%	3.8	7.7	7.7	30.8	50.0	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Ball trees to be shipped.	N	1	2	2	5	16	26	1.7
	%	3.8	7.7	7.7	19.2	61.5	100	
Support newly planted trees by guying or staking.	N	2	3	2	6	13	26	2.0
	%	7.7	11.5	7.7	23.1	50.0	100	
Add compost or peat moss at planting.	N	0	2	0	7	17	26	1.5
	%	0.0	7.7	0.0	26.7	65.4	100	
Tree Care and Maintenance								
Diagnose tree pests, diseases and other disorders.	N	9	2	3	1	11	26	2.9
	%	34.6	7.7	11.5	3.8	42.3	100	
Spray trees for pests and disease.	N	2	3	4	5	12	26	2.2
	%	7.7	11.5	15.4	19.2	46.2	100	
Prune and trim shade trees.	N	10	4	4	4	4	26	3.5
	%	38.5	15.4	15.4	15.4	15.4	100	
Trim trees for utility line clearance.	N	7	1	2	2	14	26	2.4
	%	26.7	3.8	7.7	7.7	53.8	100	
Provide winter protection for trees.	N	4	0	2	8	12	26	2.1
	%	15.4	0.0	7.7	30.8	46.2	100	
Remove broken and storm damaged limbs.	N	8	2	5	3	8	26	3.0
	%	30.8	7.7	19.2	11.5	30.8	100	
Fill tree cavities.	N	4	2	1	5	14	26	2.1
	%	15.4	7.7	3.8	19.2	53.8	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Safeguard trees in parking lots.	N	3	2	1	3	17	26	1.9
	%	11.5	7.7	3.8	11.5	65.4	100	
Remove brush and seeds.	N	8	7	1	2	8	26	3.2
	%	30.8	26.7	3.8	7.7	30.8	100	
Use block and tackle to remove trees.	N	3	1	2	2	18	26	1.8
	%	11.5	3.8	7.7	7.7	69.2	100	
Fell trees.	N	10	6	2	1	7	26	3.4
	%	38.5	23.1	7.7	3.8	26.7	100	
Cord wood to sell.	N	2	3	3	4	14	26	2.0
	%	7.7	11.5	11.5	15.4	53.8	100	
Remove tree stumps.	N	6	3	4	3	10	26	2.7
	%	23.1	11.5	15.4	11.5	38.5	100	
Haul and dispose of branches to refuse.	N	7	3	7	2	7	26	3.0
	%	26.7	11.5	26.7	7.7	26.7	100	
Climb trees.	N	11	2	0	4	9	26	3.1
	%	42.3	7.7	0.0	15.4	34.6	100	
Cable and brace weak trees or limbs.	N	5	1	4	5	11	26	2.4
	%	19.2	3.8	15.4	19.2	42.3	100	
Test soil.	N	4	1	1	0	20	26	1.8
	%	15.4	3.8	3.8	0.0	76.9	100	
Fertilize established trees.	N	4	1	1	8	12	26	2.1
	%	15.4	3.8	3.8	30.8	46.2	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Control undesirable growth with herbicides or growth retardants.	N	2	1	1	5	17	26	1.7
	%	7.7	3.8	3.8	19.2	65.4	100	
Identify trees.	N	11	3	0	4	8	26	3.2
	%	42.3	11.5	0.0	15.4	30.8	100	
Operate cherry picker.	N	9	0	1	2	14	26	2.5
	%	34.6	0.0	3.8	7.7	53.8	100	
Management								
Report and pay federal, state, and local taxes.	N	2	0	0	2	22	26	1.4
	%	7.7	0.0	0.0	7.7	84.6	100	
Understand and comply with business laws.	N	6	1	0	1	18	26	2.1
	%	23.1	3.8	0.0	3.8	69.2	100	
Administer social security and other employee benefit programs.	N	0	1	1	0	24	26	1.2
	%	0.0	3.8	3.8	0.0	92.3	100	
Identify labor needs.	N	6	0	1	0	19	26	2.0
	%	23.1	0.0	3.8	0.0	73.1	100	
Recruit employees.	N	2	0	2	1	21	26	1.5
	%	7.7	0.0	7.7	3.8	80.8	100	
Interview and select employees.	N	2	0	2	1	21	26	1.5
	%	7.7	0.0	7.7	3.8	80.8	100	
Designate employee work assignments.	N	7	0	1	0	18	26	2.2
	%	26.9	0.0	3.8	0.0	69.2	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Supervise employees.	N	7	0	2	2	15	26	2.3
	%	26.9	0.0	7.7	7.7	57.7	100	
Train new employees.	N	4	0	5	3	14	26	2.1
	%	15.4	0.0	19.2	11.5	53.8	100	
Evaluate employee performance.	N	4	0	2	1	19	26	1.8
	%	15.4	0.0	7.7	3.8	73.1	100	
Perform personnel actions such as promoting or firing.	N	1	0	1	0	24	26	1.2
	%	3.8	0.0	3.8	0.0	92.3	100	
Establish employee wages, hours, and working conditions.	N	0	1	0	1	24	26	1.2
	%	0.0	3.8	0.0	3.8	92.3	100	
Determine business credit needs.	N	0	0	0	0	26	26	1.0
	%	0.0	0.0	0.0	0.0	100.0	100	
Locate sources of, and secure credit.	N	1	0	0	0	25	26	1.2
	%	3.8	0.0	0.0	0.0	96.2	100	
Determine need for and purchase comprehensive business insurance.	N	0	0	0	0	26	26	1.0
	%	0.0	0.0	0.0	0.0	100.0	100	
Select and purchase equipment and expendables not for sale.	N	1	1	0	1	23	26	1.3
	%	3.8	3.8	0.0	3.8	88.5	100	
Determine kinds and amounts of plants to stock.	N	1	0	1	2	22	26	1.3
	%	3.8	0.0	3.8	7.7	84.6	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Identify and select producers and suppliers of plants and equipment.	N	1	1	1	2	21	26	1.4
	%	3.8	3.8	3.8	7.7	80.8	100	
Establish and enforce safety regulations.	N	6	1	0	0	19	26	2.0
	%	23.1	3.8	0.0	0.0	73.1	100	
Allocate monies in preparing working budget.	N	0	0	0	2	24	26	1.1
	%	0.0	0.0	0.0	7.7	92.3	100	
Analyze the business enterprises on cost and return basis.	N	0	0	2	1	23	26	1.2
	%	0.0	0.0	7.7	3.8	88.5	100	
Participate in horticulture trade organizations.	N	0	0	1	2	23	26	1.2
	%	0.0	0.0	3.8	7.7	88.5	100	
Plan business advertising.	N	0	0	1	0	25	26	1.1
	%	0.0	0.0	3.8	0.0	96.2	100	
Negotiate sales and/or service contracts.	N	1	0	0	0	25	26	1.2
	%	3.8	0.0	0.0	0.0	96.2	100	
Analyze jobs and contracts on a cost basis.	N	1	1	0	2	22	26	1.3
	%	3.8	3.8	0.0	7.7	84.6	100	
Determine which jobs to contract.	N	1	0	0	3	22	26	1.3
	%	3.8	0.0	0.0	11.5	84.6	100	
Develop relationships with contractors to obtain jobs and sub-contracts.	N	1	0	0	0	25	26	1.2
	%	3.8	0.0	0.0	0.0	96.2	100	

Table 6

Competencies Most Frequently Performed

by

All Arborist Service Employees

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Clean and sharpen hand tools.	N	13	9	3	2	8	35	3.5
	%	37.1	25.7	8.6	5.7	22.9	100	
Prune and trim shade trees.	N	12	6	6	6	5	35	3.4
	%	34.3	17.1	17.1	17.1	14.3	100	
Care for climbing equipment.	N	14	4	2	4	11	35	3.2
	%	40.0	11.4	5.7	11.4	31.4	100	
Identify types of trees.	N	12	5	4	2	12	35	3.1
	%	34.3	14.3	11.4	5.7	34.3	100	
Keep work, storage, and delivery areas neat and clean.	N	8	7	9	4	7	35	3.1
	%	22.9	20.0	25.7	11.4	20.0	100	
Fell trees.	N	11	6	3	4	11	35	3.1
	%	31.4	17.1	8.6	11.4	31.4	100	
Haul and dispose of branches to refuse.	N	11	3	8	3	10	35	3.1
	%	31.4	8.6	22.9	8.6	28.6	100	
Remove brush and weeds.	N	9	8	2	5	11	35	3.0
	%	25.7	22.9	5.7	14.3	31.4	100	

Table 7

Frequency of Performance of Competencies
by
Farm and Garden Supply Management and Sales Employees

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Sales								
Identify customer needs and wants.	N	28	1	0	0	0	29	5.0
	%	96.6	3.4	0.0	0.0	0.0	100	
Take orders for sales or service by telephone.	N	25	3	0	1	0	29	4.8
	%	86.2	10.3	0.0	3.4	0.0	100	
Follow-up sales to determine customer satisfaction.	N	14	6	3	2	4	29	3.8
	%	48.3	20.7	10.3	6.9	13.8	100	
Make cost estimates on customer orders.	N	21	3	3	1	1	29	4.4
	%	72.4	10.3	10.3	3.4	3.4	100	
Describe to customers the purposes and qualities of merchandise for sale.	N	25	3	0	1	0	29	4.8
	%	86.2	10.3	0.0	3.4	0.0	100	
Identify horticultural plants.	N	12	6	3	2	6	29	3.6
	%	41.4	20.7	10.3	6.9	20.7	100	
Answer customer inquiries by telephone.	N	26	3	0	0	0	29	4.9
	%	89.7	10.3	0.0	0.0	0.0	100	
Use effective interpersonal relationships in dealing with customers.	N	26	2	1	0	0	29	4.9
	%	89.7	6.9	3.4	0.0	0.0	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Prepare advertising materials.	N	4	10	3	1	11	29	2.8
	%	13.8	34.5	10.3	3.4	37.9	100	
Use supplier advertising materials.	N	8	11	5	0	5	29	3.6
	%	27.6	37.9	17.2	0.0	17.2	100	
Use various types of advertising such as mail, radio, and newspaper ads.	N	3	12	4	1	9	29	3.0
	%	10.3	41.4	13.8	3.4	31.0	100	
Label and price mark merchandise.	N	17	8	0	1	3	29	4.2
	%	58.6	27.6	0.0	3.4	10.3	100	
Use cash register or other sales recording device.	N	26	1	0	0	2	29	4.7
	%	89.7	3.4	0.0	0.0	6.9	100	
Display store merchandise for sale.	N	20	6	1	0	2	29	4.4
	%	69.0	20.7	3.4	0.0	6.9	100	
Wrap and/or package merchandise sold.	N	21	5	0	0	3	29	4.4
	%	72.4	17.2	0.0	0.0	10.3	100	
Stock shelves.	N	21	4	1	0	3	29	4.4
	%	72.4	13.8	3.4	0.0	10.3	100	
Use credit systems of payment.	N	20	3	4	0	2	29	4.3
	%	69.0	10.3	13.8	0.0	6.9	100	
Deliver or ship merchandise sold.	N	15	4	5	0	5	29	3.8
	%	51.7	13.8	17.2	0.0	17.2	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Demonstrate use of equipment and tools.	N	14	9	0	0	6	29	3.9
	%	48.3	31.0	0.0	0.0	20.7	100	
Arrange trade-ins and credit terms.	N	10	6	3	0	10	29	3.2
	%	34.5	20.7	10.3	0.0	34.5	100	
Make fertilizer and seed calculations for customers based on recommendations.	N	13	7	2	1	6	29	3.7
	%	44.8	24.1	6.9	3.4	20.7	100	
Identify and name horticultural plant disease and insect infestations.	N	11	5	3	2	8	29	3.3
	%	37.9	17.2	10.3	6.9	27.6	100	
Use recommendations for control of plant disease and insects in advising customer purchases.	N	12	6	3	3	5	29	3.6
	%	41.4	20.7	10.3	10.3	17.2	100	
Verify customer addresses using directories.	N	11	11	4	1	2	29	4.0
	%	37.9	37.9	13.8	3.4	6.9	100	
Use handout materials in answering customer inquiries.	N	18	7	3	0	1	29	4.4
	%	62.1	24.1	10.3	0.0	3.4	100	
Keep price lists and catalogs current.	N	15	9	2	1	2	29	4.2
	%	51.7	31.0	6.9	3.4	6.9	100	
Rent equipment to customers.	N	9	7	6	1	6	29	3.4
	%	31.0	24.1	20.7	3.4	20.7	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Records								
Keep records of receipts and expenses.	N	9	2	1	1	16	29	2.6
	%	31.0	6.9	3.4	3.4	55.2	100	
Make out and mail bills to collect accounts due.	N	4	0	4	2	19	29	1.9
	%	13.8	0.0	13.8	6.9	65.5	100	
Check credit references of customers.	N	7	1	5	1	15	29	2.4
	%	24.1	3.4	17.2	3.4	51.7	100	
Perform filing tasks.	N	6	5	6	2	10	29	2.8
	%	20.7	17.2	20.7	6.9	34.5	100	
Perform typing and mailing tasks.	N	8	3	3	3	12	29	2.7
	%	27.6	10.3	10.3	10.3	41.4	100	
Keep employee work records.	N	2	7	1	0	19	29	2.1
	%	6.9	24.1	3.4	0.0	65.5	100	
Prepare employee payroll.	N	0	7	1	0	21	29	1.8
	%	0.0	24.1	3.4	0.0	72.4	100	
Pay accounts payable.	N	3	2	4	0	20	29	1.9
	%	10.3	6.9	13.8	0.0	69.0	100	
Assist in records audit.	N	1	1	2	6	19	29	1.6
	%	3.4	3.4	6.9	20.7	65.5	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Prepare income tax and other government reports.	N	0	1	2	1	25	29	1.3
	%	0.0	3.4	6.9	3.4	86.2	100	
Keep annual depreciation schedule.	N	0	0	1	3	25	29	1.2
	%	0.0	0.0	3.4	10.3	86.2	100	
Keep customer credit records.	N	5	1	4	1	18	29	2.1
	%	17.2	3.4	13.8	3.4	62.1	100	
Use adding machine and/or other tabulation devices in balancing accounts.	N	12	1	1	0	15	29	2.8
	%	41.4	3.4	3.4	0.0	51.7	100	
Inventory								
Keep current inventory of merchandise for sale.	N	13	6	2	5	3	29	3.7
	%	44.8	20.7	6.9	17.2	10.3	100	
Check received merchandise against invoice listings.	N	13	9	2	1	4	29	3.9
	%	44.8	31.0	6.9	3.4	13.8	100	
Check invoices for math errors.	N	10	4	2	1	12	29	3.0
	%	34.5	13.8	6.9	3.4	41.4	100	
Take annual inventory for tax purposes.	N	1	0	1	20	7	29	1.9
	%	3.4	0.0	3.4	69.0	24.1	100	
Store received merchandise.	N	12	10	2	1	4	29	3.9
	%	41.4	34.5	6.9	3.4	13.8	100	
Arrange for transportation of materials purchased.	N	10	7	4	1	7	29	3.4
	%	34.5	24.1	13.8	3.4	24.1	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Order replacement and/or new merchandise for sale.	N	11	11	4	0	3	29	3.9
	%	37.9	37.9	13.8	0.0	10.3	100	
Maintenance								
Keep work, storage, and delivery areas neat and clean.	N	18	6	1	0	4	29	4.2
	%	62.1	20.7	3.4	0.0	13.8	100	
Clean and sharpen hand tools.	N	1	2	8	2	16	29	2.0
	%	3.4	6.9	27.6	6.9	55.2	100	
Perform light maintenance of business vehicle or tractor - oil level, tire pressure, battery and radiator water levels.	N	2	4	4	3	16	29	2.1
	%	6.9	13.8	13.8	10.3	55.2	100	
Perform minor tune-up of business vehicle or tractor by replacement of spark plugs and ignition points.	N	1	0	3	1	24	29	1.4
	%	3.4	0.0	10.3	3.4	82.8	100	
Change oil and grease business vehicle or tractor.	N	0	0	5	0	24	29	1.3
	%	0.0	0.0	17.2	0.0	82.8	100	
Repair display cases and storage shelves.	N	1	1	8	8	11	29	2.1
	%	3.4	3.4	27.6	27.6	37.9	100	
Perform electrical repair of light switches and extension cords.	N	0	1	9	1	18	29	1.8
	%	0.0	3.4	31.0	3.4	62.1	100	
Paint display cases and storage shelves.	N	0	0	4	12	13	29	1.7
	%	0.0	0.0	13.8	41.4	44.8	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Perform plumbing repair by replacement of worn gasket or valves.	N	1	0	2	7	19	29	1.5
	%	3.4	0.0	6.9	24.1	65.5	100	
Clean and oil electric motors.	N	0	0	3	7	19	29	1.4
	%	0.0	0.0	10.3	24.1	65.5	100	
Order repair parts for vehicles and/or other equipment.	N	1	2	5	5	16	29	1.9
	%	3.4	6.9	17.2	17.2	55.2	100	
Keep merchandise and customer areas neat and clean.	N	17	7	1	0	4	29	4.1
	%	58.6	24.1	3.4	0.0	13.8	100	
Maintain and repair small gas engines.	N	1	1	2	3	22	29	1.5
	%	3.4	3.4	6.9	10.3	75.9	100	
Water and care for plants on display and/or storage.	N	8	9	0	1	11	29	3.1
	%	27.6	31.0	0.0	3.4	37.9	100	
Calibrate spreading and spraying equipment.	N	2	6	3	3	15	29	2.2
	%	6.9	20.7	10.3	10.3	51.7	100	
Follow safety factors in pesticide applications.	N	9	4	4	4	8	29	3.1
	%	31.0	13.8	13.8	13.8	27.6	100	
Management								
Report and pay federal, state, and local taxes.	N	0	0	6	1	22	29	1.4
	%	0.0	0.0	20.7	3.4	75.9	100	
Understand and comply with business laws.	N	16	1	2	1	9	29	3.5
	%	55.2	3.4	6.9	3.4	31.0	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Administer social security and other employee benefit programs.	N	0	4	3	0	22	29	1.6
	%	0.0	13.8	10.3	0.0	75.9	100	
Identify labor needs.	N	10	2	2	2	13	29	2.8
	%	34.5	6.9	6.9	6.9	44.8	100	
Recruit employees.	N	4	1	5	7	12	29	2.2
	%	13.8	3.4	17.2	24.1	41.4	100	
Interview and select employees.	N	4	0	8	6	11	29	2.3
	%	13.8	0.0	27.6	20.7	37.9	100	
Designate employee work assignments.	N	17	3	2	0	7	29	3.8
	%	58.6	10.3	6.9	0.0	24.1	100	
Supervise employees.	N	18	2	2	1	5	29	3.9
	%	62.1	6.9	10.3	3.4	17.2	100	
Train new employees.	N	10	4	6	3	6	29	3.3
	%	34.5	13.8	20.7	10.3	20.7	100	
Evaluate employee performance.	N	13	2	2	3	9	29	3.2
	%	44.8	6.9	6.9	10.3	31.0	100	
Perform personnel actions such as promoting or firing.	N	8	0	5	2	14	29	2.5
	%	27.6	0.0	17.2	6.9	48.3	100	
Establish employee wages, hours, and working conditions.	N	6	2	6	2	13	29	2.5
	%	20.7	6.9	20.7	6.9	44.8	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Determine business credit needs.	N	3	0	5	3	18	29	1.9
	%	10.3	0.0	17.2	10.3	62.1	100	
Locate sources of, and secure credit.	N	4	1	5	1	18	29	2.0
	%	13.8	3.4	17.2	3.4	62.1	100	
Determine need for, and purchase comprehensive business insurance.	N	1	0	0	8	20	29	1.4
	%	3.4	0.0	0.0	27.6	69.0	100	
Select and purchase equipment and expendables not for sale.	N	4	4	6	3	12	29	2.5
	%	13.8	13.8	20.7	10.3	41.4	100	
Determine kinds and amounts of equipment to buy and stock.	N	5	7	4	2	11	29	2.8
	%	17.2	24.1	13.8	6.9	37.9	100	
Identify and select producers and suppliers of equipment and plants.	N	5	6	2	4	12	29	2.6
	%	17.2	20.7	6.9	13.8	41.4	100	
Establish and enforce safety regulations.	N	11	3	2	2	11	29	3.0
	%	37.9	10.3	6.9	6.9	37.9	100	
Allocate monies in preparing working budget.	N	2	0	7	3	17	29	1.9
	%	6.9	0.0	24.1	10.3	58.6	100	
Analyze the business enterprises on cost and return basis.	N	4	0	5	5	15	29	2.1
	%	13.8	0.0	17.2	17.2	51.7	100	
Participate in horticulture trade organizations.	N	0	1	3	6	19	29	1.5
	%	0.0	3.4	10.3	20.7	65.5	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Plan business advertising.	N	5	4	5	0	15	29	2.4
	%	17.2	13.8	17.2	0.0	51.7	100	
Negotiate sales contracts.	N	4	3	3	1	18	29	2.1
	%	13.8	10.3	10.3	3.4	62.1	100	
Prepare and implement contracts.	N	3	4	4	0	18	29	2.1
	%	10.3	13.8	13.8	0.0	62.1	100	

Table 8

Frequency of Performance of Competencies
by
Farm and Garden Supply Labor Employees

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Sales								
Identify customer needs and wants.	N	10	3	1	0	5	19	3.7
	%	52.6	15.8	5.3	0.0	26.3	100	
Take orders for sales or service by telephone.	N	7	3	1	1	7	19	3.1
	%	36.8	15.8	5.3	5.3	36.8	100	
Follow-up sales to determine customer satisfaction.	N	1	2	3	0	12	19	1.8
	%	5.3	10.5	15.8	0.0	68.4	100	
Make cost estimates on customer orders.	N	3	2	1	0	13	19	2.1
	%	15.8	10.5	5.3	0.0	68.4	100	
Describe to customers the purposes and qualities of merchandise for sale.	N	3	4	1	0	11	19	2.4
	%	15.8	21.1	5.3	0.0	57.9	100	
Identify horticultural plants.	N	2	0	2	1	14	19	1.7
	%	10.5	0.0	10.5	5.3	73.7	100	
Answer customer inquiries by telephone.	N	10	4	0	0	5	19	3.7
	%	52.6	21.1	0.0	0.0	26.3	100	
Use effective interpersonal relationships in dealing with customers.	N	5	4	2	0	8	19	2.9
	%	26.8	21.1	10.5	0.0	42.1	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Prepare advertising materials.	N	0	1	0	2	16	19	1.3
	%	0.0	5.3	0.0	10.5	84.2	100	
Use supplier advertising materials.	N	0	3	0	1	15	19	1.5
	%	0.0	15.8	0.0	5.3	78.9	100	
Use various types of advertising such as mail, radio, and newspaper ads.	N	0	1	0	1	17	19	1.2
	%	0.0	5.3	0.0	5.3	89.5	100	
Label and price mark merchandise.	N	2	0	4	0	13	19	1.8
	%	10.5	0.0	21.1	0.0	68.4	100	
Use cash register or other sales recording device.	N	10	3	1	0	5	19	3.7
	%	52.6	15.8	5.3	0.0	26.3	100	
Display store merchandise for sale.	N	1	0	3	0	15	19	1.5
	%	5.3	0.0	15.8	0.0	78.9	100	
Wrap and/or package merchandise sold.	N	3	1	1	1	13	19	1.9
	%	15.8	5.3	5.3	5.3	68.4	100	
Stock shelves.	N	1	0	2	0	16	19	1.4
	%	5.3	0.0	10.5	0.0	84.2	100	
Use credit systems of payment.	N	10	1	0	0	8	19	3.3
	%	52.6	5.3	0.0	0.0	42.1	100	
Deliver or ship merchandise sold.	N	0	1	1	1	16	19	1.3
	%	0.0	5.3	5.3	5.3	84.2	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Demonstrate use of equipment and tools.	N	0	1	2	0	16	19	1.4
	%	0.0	5.3	10.5	0.0	84.2	100	
Arrange trade-ins and credit terms.	N	3	0	2	0	14	19	1.8
	%	15.8	0.0	10.5	0.0	73.7	100	
Make fertilizer and seed calculations for customers based on recommendations.	N	2	1	1	0	15	19	1.7
	%	10.5	5.3	5.3	0.0	78.9	100	
Identify and name horticultural plant disease and insect infestations.	N	1	0	0	1	17	19	1.3
	%	5.3	0.0	0.0	5.3	89.5	100	
Use recommendations for control of plant disease and insects in advising customer purchases.	N	3	2	0	1	13	19	2.0
	%	15.8	10.5	0.0	5.3	68.4	100	
Verify customer addresses using directories.	N	8	6	1	1	3	19	3.8
	%	42.1	31.6	5.3	5.3	15.8	100	
Use handout materials in answering customer inquiries.	N	3	3	2	0	11	19	2.3
	%	15.8	15.8	10.5	0.0	57.9	100	
Keep price lists and catalogs current.	N	6	1	4	1	7	19	2.9
	%	31.6	5.3	21.1	5.3	36.8	100	
Rent equipment to customers.	N	0	2	1	0	16	19	1.4
	%	0.0	10.5	5.3	0.0	84.2	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Records								
Keep records of receipts and expenses.	N	14	0	1	1	3	19	4.1
	%	73.7	0.0	5.3	5.3	15.8	100	
Make out and mail bills to collect accounts due.	N	6	0	8	0	5	19	3.1
	%	31.6	0.0	42.1	0.0	26.3	100	
Check credit references of customers.	N	10	0	2	1	6	19	3.4
	%	52.6	0.0	10.5	5.3	31.6	100	
Perform filing tasks.	N	12	3	2	1	1	19	4.3
	%	63.2	15.8	10.5	5.3	5.3	100	
Perform typing and mailing tasks.	N	17	1	1	0	0	19	4.8
	%	89.5	5.3	5.3	0.0	0.0	100	
Keep employee work records.	N	9	2	1	0	7	19	3.3
	%	47.4	10.5	5.3	0.0	36.8	100	
Prepare employee payroll.	N	3	6	0	2	8	19	2.7
	%	15.8	31.6	0.0	10.5	42.1	100	
Pay accounts payable.	N	8	2	1	1	7	19	3.2
	%	42.1	10.5	5.3	5.3	36.8	100	
Assist in records audit.	N	4	0	1	5	9	19	2.2
	%	21.1	0.0	5.3	26.3	47.4	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Prepare income tax and other government reports.	N	0	0	7	2	10	19	1.8
	%	0.0	0.0	36.8	10.5	52.6	100	
Keep annual depreciation schedule.	N	0	0	1	2	16	19	1.2
	%	0.0	0.0	5.3	10.5	84.2	100	
Keep customer credit records.	N	11	0	3	0	5	19	3.6
	%	57.9	0.0	15.8	0.0	26.3	100	
Use adding machine and/or other tabulation devices in balancing accounts.	N	16	0	2	0	1	19	4.6
	%	84.2	0.0	10.5	0.0	5.3	100	
Inventory								
Keep current inventory of merchandise for sale.	N	3	0	2	1	13	19	1.9
	%	15.8	0.0	10.5	5.3	68.4	100	
Check received merchandise against invoice listings.	N	6	2	1	0	10	19	2.7
	%	31.6	10.5	5.3	0.0	52.6	100	
Check invoices for math errors.	N	9	3	0	0	7	19	3.4
	%	47.4	15.8	0.0	0.0	36.8	100	
Take annual inventory for tax purposes.	N	1	0	1	4	13	19	1.5
	%	5.3	0.0	5.3	21.1	68.4	100	
Store received merchandise.	N	2	1	1	0	15	19	1.7
	%	10.5	5.3	5.3	0.0	78.9	100	
Arrange for transportation of materials purchased.	N	0	1	1	0	17	19	1.3
	%	0.0	5.3	5.3	0.0	89.5	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Order replacement and/or new merchandise for sale.	N	1	0	0	2	16	19	1.3
	%	5.3	0.0	0.0	10.5	84.2	100	
Maintenance								
Keep work, storage, and delivery areas neat and clean.	N	9	2	0	0	8	19	3.2
	%	47.4	10.5	0.0	0.0	42.1	100	
Clean and sharpen hand tools.	N	1	0	0	1	17	19	1.3
	%	5.3	0.0	0.0	5.3	89.5	100	
Perform light maintenance of business vehicle or tractor - oil level, tire pressure, battery and radiator water levels.	N	0	0	0	0	19	19	1.0
	%	0.0	0.0	0.0	0.0	100	100	
Perform minor tune-up of business vehicle or tractor by replacement of spark plugs and ignition points.	N	0	0	0	0	19	19	1.0
	%	0.0	0.0	0.0	0.0	100	100	
Change oil and grease business vehicle or tractor.	N	0	0	0	0	19	19	1.0
	%	0.0	0.0	0.0	0.0	100	100	
Repair display cases and storage shelves.	N	0	1	0	0	18	19	1.2
	%	0.0	5.3	0.0	0.0	94.7	100	
Perform electrical repair of light switches and extension cords.	N	0	0	1	0	18	19	1.1
	%	0.0	0.0	5.3	0.0	94.7	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Paint display cases and storage shelves.	N	0	0	0	1	18	19	1.1
	%	0.0	0.0	0.0	5.3	94.7	100	
Perform plumbing repair by replacement of worn gasket or valves.	N	0	0	0	0	19	19	1.0
	%	0.0	0.0	0.0	0.0	100	100	
Clean and oil electric motors.	N	0	0	0	0	19	19	1.0
	%	0.0	0.0	0.0	0.0	100	100	
Order repair parts for vehicles and/or other equipment.	N	0	0	0	0	19	19	1.0
	%	0.0	0.0	0.0	0.0	100	100	
Keep merchandise and customer areas neat and clean.	N	3	2	0	0	14	19	1.9
	%	15.8	10.5	0.0	0.0	73.7	100	
Maintain and repair small gas engines.	N	0	0	0	0	19	19	1.0
	%	0.0	0.0	0.0	0.0	100	100	
Water and care for plants on display and/or storage.	N	1	4	1	0	13	19	1.9
	%	5.3	21.1	5.3	0.0	68.4	100	
Calibrate spreading and spraying equipment.	N	0	1	0	0	18	19	1.2
	%	0.0	5.3	0.0	0.0	94.7	100	
Follow safety factors in pesticide applications.	N	0	0	1	0	18	19	1.1
	%	0.0	0.0	5.3	0.0	94.7	100	
Management								
Report and pay federal, state, and local taxes.	N	0	0	9	0	10	19	1.9
	%	0.0	0.0	47.4	0.0	52.6	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Understand and comply with business laws.	N	5	0	1	2	11	19	2.3
	%	26.3	0.0	5.3	10.5	57.9	100	
Administer social security and other employee benefit programs.	N	0	4	1	0	14	19	1.7
	%	0.0	21.1	5.3	0.0	73.7	100	
Identify labor needs.	N	1	0	1	1	16	19	1.4
	%	5.3	0.0	5.3	5.3	84.2	100	
Recruit employees.	N	0	0	1	2	16	19	1.2
	%	0.0	0.0	5.3	10.5	84.2	100	
Interview and select employees.	N	0	0	2	1	16	19	1.3
	%	0.0	0.0	10.5	5.3	84.2	100	
Designate employee work assignments.	N	4	0	0	2	13	19	1.9
	%	21.1	0.0	0.0	10.5	68.4	100	
Supervise employees.	N	3	1	0	2	13	19	1.9
	%	15.8	5.3	0.0	10.5	68.4	100	
Train new employees.	N	2	1	0	3	13	19	1.7
	%	10.5	5.3	0.0	15.8	68.4	100	
Evaluate employee performance.	N	0	1	0	2	16	19	1.3
	%	0.0	5.3	0.0	10.5	84.2	100	
Perform personnel actions such as promoting or firing.	N	1	1	0	0	17	19	1.4
	%	5.3	5.3	0.0	0.0	89.5	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Establish employee wages, hours, and working conditions.	N	2	0	1	0	16	19	1.5
	%	10.5	0.0	5.3	0.0	84.2	100	
Determine business credit needs.	N	1	0	1	1	16	19	1.4
	%	5.3	0.0	5.3	5.3	84.2	100	
Locate sources of, and secure credit.	N	2	0	0	0	17	19	1.4
	%	10.5	0.0	0.0	0.0	89.5	100	
Determine need for, and purchase comprehensive business insurance.	N	0	0	0	0	19	19	1.0
	%	0.0	0.0	0.0	0.0	100	100	
Select and purchase equipment and expendables not for sale.	N	0	1	2	0	16	19	1.4
	%	0.0	5.3	10.5	0.0	84.2	100	
Determine kinds and amounts of equipment to buy and stock.	N	0	1	1	0	17	19	1.3
	%	0.0	5.3	5.3	0.0	89.5	100	
Identify and select producers and suppliers of equipment and plants.	N	0	0	1	0	18	19	1.1
	%	0.0	0.0	5.3	0.0	94.7	100	
Establish and enforce safety regulations.	N	0	1	0	1	17	19	1.2
	%	0.0	5.3	0.0	5.3	89.5	100	
Allocate monies in preparing working budget.	N	0	0	1	1	17	19	1.2
	%	0.0	0.0	5.3	5.3	89.5	100	
Analyze the business enterprises on cost and return basis.	N	0	0	2	1	16	19	1.3
	%	0.0	0.0	10.5	5.3	84.2	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Participate in horticulture trade organizations.	N	0	0	0	1	18	19	1.1
	%	0.0	0.0	0.0	5.3	94.7	100	
Plan business advertising.	N	0	1	0	0	18	19	1.2
	%	0.0	5.3	0.0	0.0	94.7	100	
Negotiate sales contracts.	N	0	1	1	0	17	19	1.3
	%	0.0	5.3	5.3	0.0	89.5	100	
Prepare and implement contracts.	N	0	1	0	0	18	19	1.2
	%	0.0	5.3	0.0	0.0	94.7	100	

Those competencies performed once a month, once a week, and daily by all farm and garden supply store employees are presented in Table 9. In the main, those most frequently performed competencies were in the sales and records area of the businesses in which they were employed.

Mowing and trimming greens (4.1); identifying weeds, insects, and diseases (4.3); keeping records of fertilizer and chemicals applied (4.1); keeping work and storage areas neat and clean (4.1); cleaning and sharpening hand tools (4.0); performing light maintenance of business vehicles or tractors--oil level, tire pressure, battery, and radiator water levels (4.5); designating employee work assignments (4.5); supervising employees (4.9); evaluating employee performance (4.2); and establishing and enforcing safety regulations (4.5) were competencies performed weekly and/or daily by golf course management employees. Those observations were made based on data presented in Table 10. It was noted that 5 of these ten frequently performed competencies were agricultural in nature requiring skill and knowledge in various phases of technical agriculture. It was further observed that more of the tasks performed by these employees on a weekly and daily basis were in the areas of maintenance of greens, records, and management.

Data in Table 11 reveal the frequency of performance of competencies by Golf course labor employees. In contrast to golf course management employees, these employees performed tasks more frequently in the maintenance of fairways and traps and maintenance areas. Those tasks most frequently performed by these workers included mowing and trimming greens (3.5); moving the cup (3.0); adding and raking sand in traps (3.3); mowing and trimming fairways (3.0); maintaining and cleaning ball washers, tee markers, benches, and trash baskets (3.1); keeping work and storage areas neat and clean (3.7); cleaning and sharpening hand tools (3.6); performing light maintenance of business vehicles and tractors (4.0); and changing oil and greasing business vehicle or tractor (3.2).

The most frequently performed competencies by all golf course management employees are presented in Table 12. It was observed that 8 of the 10 competencies listed were agricultural in nature requiring knowledges and skills in one or several areas of production agriculture to perform the tasks.

It was observed, based on data presented in Table 13, that the most frequently performed competencies by greenhouse production management and sales employees were in the broad areas of storage and packaging, sales, and inventory. Most performed competencies by this group included placing cut flowers in environmental storage; describing to consumers the purposes and qualities of merchandise for sale; identifying customer needs and wants; taking orders for sales by telephone; and making cost estimates on customer orders.

Table 9

Competencies Most Frequently Performed

by

All Farm and Garden Supply Store Employees

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Identify customer needs and wants.	N	38	4	1	0	5	48	4.5
	%	79.2	8.3	2.1	0.0	10.4	100	
Answer customer inquiries by telephone.	N	36	7	0	0	5	48	4.4
	%	75.0	14.6	0.0	0.0	10.4	100	
Use cash register or other sales recording device.	N	36	4	1	0	7	48	4.3
	%	75.0	8.3	2.1	0.0	14.6	100	
Take orders for sales or service by telephone.	N	32	6	1	2	7	48	4.1
	%	66.7	12.5	2.1	4.2	14.6	100	
Use effective interpersonal relationships in dealing with customers.	N	31	6	3	0	8	48	4.1
	%	64.6	12.5	6.3	0.0	16.7	100	
Verify customer addresses using directories.	N	19	17	6	2	5	48	3.9
	%	39.6	35.4	10.4	4.2	10.4	100	
Use credit systems of payment.	N	30	4	4	0	10	48	3.9
	%	62.5	8.3	8.3	0.0	20.8	100	
Describe to customers the purposes and qualities of merchandise for sale.	N	28	7	1	1	11	48	3.8
	%	58.3	14.6	2.1	2.1	22.9	100	
Keep work, storage, and delivery areas neat and clean.	N	27	8	1	0	12	48	3.8
	%	56.3	16.7	2.1	0.0	25.0	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Keep price lists and catalogs current.	N	21	10	6	2	9	48	3.7
	%	43.8	20.8	12.5	4.2	18.8	100	
Use handout materials in answering customer inquiries.	N	21	10	5	0	12	48	3.6
	%	43.8	20.8	10.4	0.0	25.0	100	
Perform typing and mailing tasks.	N	25	4	4	3	12	48	3.6
	%	52.1	8.3	8.3	6.3	25.0	100	
Make cost estimates on customer orders.	N	24	5	4	1	14	48	3.5
	%	50.0	10.4	8.3	2.1	29.2	100	
Use adding machine and/or other tabulation devices in balancing accounts.	N	28	1	3	0	16	48	3.5
	%	58.3	2.1	6.3	0.0	33.3	100	
Wrap and/or package merchandise sold.	N	24	6	1	1	16	48	3.4
	%	50.0	12.5	2.1	2.1	33.3	100	
Perform filing tasks.	N	18	8	8	3	11	48	3.4
	%	37.5	16.7	16.7	6.3	22.9	100	
Check received merchandise against invoice listings.	N	19	11	3	1	14	48	3.4
	%	39.6	22.9	6.3	2.1	29.2	100	
Label and price mark merchandise.	N	19	8	4	1	16	48	3.3
	%	39.6	16.7	8.3	2.1	33.3	100	
Display store merchandise for sale.	N	21	6	4	0	17	48	3.3
	%	43.8	12.5	8.3	0.0	35.4	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Keep merchandise and customer areas neat and clean.	N	20	9	1	0	18	48	3.3
	%	41.7	18.8	2.1	0.0	37.5	100	
Stock shelves.	N	22	4	3	0	19	48	3.2
	%	45.8	8.3	6.3	0.0	39.6	100	
Keep records of receipts and expenses.	N	23	2	2	2	19	48	3.2
	%	47.9	4.2	4.2	4.2	39.6	100	
Designate employee work assignments.	N	21	3	2	2	20	48	3.1
	%	43.8	6.3	4.2	4.2	41.7	100	
Supervise employees.	N	21	3	3	3	18	48	3.1
	%	43.8	6.3	6.3	6.3	37.5	100	
Check invoices for math errors.	N	19	7	2	1	19	48	3.1
	%	39.6	14.6	4.2	2.1	39.6	100	
Follow-up sales to determine customer satisfaction.	N	15	8	6	2	17	48	3.0
	%	31.3	16.7	12.5	4.2	35.4	100	
Use recommendations for control of plant disease and insects in advising customer purchases.	N	15	8	3	4	18	48	3.0
	%	31.3	16.7	6.3	8.3	37.5	100	
Keep current inventory of merchandise for sale.	N	16	6	4	6	16	48	3.0
	%	33.3	12.5	8.3	12.5	33.3	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Store received merchandise.	N	14	11	3	1	19	48	3.0
	%	29.2	22.9	6.3	2.1	39.6	100	
Understand and comply with business laws.	N	21	1	3	3	20	48	3.0
	%	43.8	2.1	6.3	6.3	41.7	100	

Table 10

Frequency of Performance of Competencies
by
Golf Course Management Employees

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Maintenance of Greens								
Mow and trim greens	N	7	6	0	1	1	15	4.1
	%	46.7	40.0	0.0	6.7	6.7	100	
Move the cup.	N	5	7	1	0	2	15	3.9
	%	33.3	46.7	6.7	0.0	13.3	100	
Water greens.	N	7	4	1	1	2	15	3.9
	%	46.7	26.7	6.7	6.7	13.3	100	
Replace sod.	N	0	1	7	6	1	15	2.5
	%	0.0	6.7	46.7	40.0	6.7	100	
Identify weeds, insects, and diseases.	N	8	4	2	1	0	15	4.3
	%	53.3	26.7	13.3	6.7	0.0	100	
Remove weeds and diseased turf.	N	1	5	4	3	2	15	3.0
	%	6.7	33.3	26.7	20.0	13.3	100	
Apply chemicals to control insects and fungus.	N	0	7	6	2	0	15	3.3
	%	0.0	46.7	40.0	13.3	0.0	100	
Apply chemicals to control weeds.	N	0	1	3	11	0	15	2.3
	%	0.0	6.7	20.0	73.3	0.0	100	
Test soils for nutrient content.	N	0	0	0	10	5	15	1.7
	%	0.0	0.0	0.0	66.7	33.3	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Fertilize based on soil tests.	N	0	0	5	6	4	15	2.1
	%	0.0	0.0	33.3	40.0	26.7	100	
Top-dress greens and trees with prepared soil mix.	N	0	0	1	13	1	15	2.0
	%	0.0	0.0	6.7	86.7	6.7	100	
Perform vertical mowing, spiking and thatching.	N	1	2	6	5	1	15	2.8
	%	6.7	13.3	40.0	33.3	6.7	100	
Maintenance of Fairways and Traps								
Add and rake sand in traps.	N	2	3	2	2	6	15	2.5
	%	13.3	20.0	13.3	13.3	40.0	100	
Mow and trim fairways.	N	3	5	3	2	2	15	3.3
	%	20.0	33.3	20.0	13.3	13.3	100	
Water fairways.	N	0	2	2	1	10	15	1.7
	%	0.0	13.3	13.3	6.7	66.7	100	
Clean drains.	N	0	0	3	4	8	15	1.7
	%	0.0	0.0	20.0	26.7	53.3	100	
Reseed worn spots on fairways.	N	0	0	1	10	4	15	1.8
	%	0.0	0.0	6.7	66.7	26.7	100	
Repair divots.	N	6	4	2	0	3	15	3.7
	%	40.0	26.7	13.3	0.0	20.0	100	
Spray chemicals to control weeds, insects, and disease.	N	0	3	2	7	3	15	2.3
	%	0.0	20.0	13.3	46.7	20.0	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Fertilize based on soil tests.	N	0	1	2	7	5	15	1.9
	%	0.0	6.7	13.3	46.7	33.3	100	
Set boundaries.	N	0	0	1	10	4	15	1.8
	%	0.0	0.0	6.7	66.7	26.7	100	
Maintain paths and signs.	N	1	1	3	7	3	15	2.3
	%	6.7	6.7	20.0	46.7	20.0	100	
Trim trees and shrubs.	N	0	1	3	11	0	15	2.3
	%	0.0	6.7	20.0	73.3	0.0	100	
Maintain and clean ball washers, tee markers, benches, and trash baskets.	N	3	9	1	0	2	15	3.7
	%	20.0	60.0	6.7	0.0	13.3	100	
Records								
Keep employee time records.	N	6	3	1	1	4	15	3.4
	%	40.0	20.0	6.7	6.7	26.7	100	
Keep records of fertilizer and chemicals applied.	N	8	2	4	0	1	15	4.1
	%	53.3	13.3	26.7	0.0	6.7	100	
Keep records of expenditures for all materials used.	N	4	2	3	2	4	15	3.0
	%	26.7	13.3	20.0	13.3	26.7	100	
Inventory								
Keep current inventory of merchandise for sale: seed, fertilizer, and chemicals.	N	1	2	0	5	7	15	2.0
	%	6.7	13.3	0.0	33.3	46.7	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Check received merchandise against invoice listings.	N	5	0	6	1	3	15	3.2
	%	33.3	0.0	40.0	6.7	20.0	100	
Check invoices for math errors.	N	5	0	4	0	6	15	2.9
	%	33.3	0.0	26.7	0.0	40.0	100	
Take annual inventory for tax purposes.	N	0	0	0	11	4	15	1.7
	%	0.0	0.0	0.0	73.3	26.7	100	
Store received seed, fertilizer, and chemicals.	N	3	0	2	9	1	15	2.7
	%	20.0	0.0	13.3	60.0	6.7	100	
Arrange for transportation of materials purchased.	N	2	1	3	4	5	15	2.4
	%	13.3	6.7	20.0	26.7	33.3	100	
Order replacement and/or new seed, fertilizer, and chemicals.	N	2	0	1	11	1	15	2.4
	%	13.3	0.0	6.7	73.3	6.7	100	
Maintenance								
Keep work and storage areas neat and clean.	N	7	4	3	1	0	15	4.1
	%	46.7	26.7	20.0	6.7	0.0	100	
Clean and sharpen hand tools.	N	5	6	3	1	0	15	4.0
	%	33.3	40.0	20.0	6.7	0.0	100	
Perform light maintenance of business vehicles or tractor - oil level, tire pressure, battery, and radiator water levels.	N	10	4	0	1	0	15	4.5
	%	66.7	26.7	0.0	6.7	0.0	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Perform minor tune-up of business vehicle or tractor by replacement of spark plugs and ignition points.	N	2	0	7	6	0	15	2.9
	%	13.3	0.0	46.7	40.0	0.0	100	
Change oil and grease business vehicle or tractor.	N	0	0	14	0	1	15	2.9
	%	0.0	0.0	93.3	0.0	6.7	100	
Repair storage building and repair shop.	N	1	0	5	6	3	15	2.3
	%	6.7	0.0	33.3	40.0	20.0	100	
Perform electrical repair of light switches and extension cords.	N	1	0	4	4	6	15	2.1
	%	6.7	0.0	26.7	26.7	40.0	100	
Paint storage buildings, benches, and repair shop.	N	0	0	1	12	2	15	1.9
	%	0.0	0.0	6.7	80.0	13.3	100	
Perform plumbing repair by replacement of worn gaskets or valves.	N	2	0	1	9	3	15	2.3
	%	13.3	0.0	6.7	60.0	20.0	100	
Clean and oil electric motors.	N	1	0	4	9	1	15	2.4
	%	6.7	0.0	26.7	60.0	6.7	100	
Order repair parts for vehicles and/or other equipment.	N	2	1	6	4	2	15	2.8
	%	13.3	6.7	40.0	26.7	13.3	100	
Service and repair of irrigation systems.	N	1	2	6	4	2	15	2.7
	%	6.7	13.3	40.0	26.7	13.3	100	
Perform maintenance and repair of small gas engines (e.g. lawnmowers, edgers).	N	6	0	5	4	0	15	3.5
	%	40.0	0.0	33.3	26.7	0.0	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Clean and sharpen mower blades.	N	1	3	8	3	0	15	3.1
	%	6.7	20.0	53.3	20.0	0.0	100	
Clean and repair dusters and sprayers.	N	0	1	9	3	2	15	2.6
	%	0.0	6.7	60.0	20.0	13.3	100	
Management								
Understand and comply with business laws.	N	8	1	2	2	2	15	3.7
	%	53.3	6.7	13.3	13.3	13.3	100	
Identify labor needs.	N	7	1	3	4	0	15	3.7
	%	46.7	6.7	20.0	26.7	0.0	100	
Recruit employees.	N	2	1	2	5	5	15	2.3
	%	13.3	6.7	13.3	33.3	33.3	100	
Interview and select employees.	N	2	1	2	6	4	15	2.4
	%	13.3	6.7	13.3	40.0	26.7	100	
Designate employee work assignments.	N	13	0	1	0	1	15	4.6
	%	86.7	0.0	6.7	0.0	6.7	100	
Supervise employees.	N	14	0	1	0	0	15	4.9
	%	93.3	0.0	6.7	0.0	0.0	100	
Evaluate employee performance.	N	10	0	3	2	0	15	4.2
	%	66.7	0.0	20.0	13.3	0.0	100	
Recommend personnel actions such as promoting or firing.	N	4	1	2	6	2	15	2.9
	%	26.7	6.7	13.3	40.0	13.3	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Identify and select producers and suppliers of seed, fertilizer, and chemicals.	N	2	1	2	9	1	15	2.6
	%	13.3	6.7	13.3	60.0	6.7	100	
Establish and enforce safety regulations.	N	12	0	1	2	0	15	4.5
	%	80.0	0.0	6.7	13.3	0.0	100	
Allocate monies in preparing working budget.	N	1	0	2	5	7	15	1.9
	%	6.7	0.0	13.3	33.3	46.7	100	
Participate in horticulture trade organizations.	N	0	0	4	4	7	15	1.8
	%	0.0	0.0	26.7	26.7	46.7	100	

Table 11

Frequency of Performance of Competencies
by
Golf Course Labor Employees

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Maintenance of Greens								
Mow and trim greens.	N	14	6	0	0	10	30	3.5
	%	46.7	20.0	0.0	0.0	33.3	100	
Move the cup.	N	6	11	2	0	11	30	3.0
	%	20.0	36.7	6.7	0.0	36.7	100	
Water greens.	N	8	7	1	0	14	30	2.8
	%	26.7	23.3	3.3	0.0	46.7	100	
Replace sod.	N	0	0	10	8	12	30	1.9
	%	0.0	0.0	33.3	26.7	40.0	100	
Identify weeds, insects, and diseases.	N	1	5	5	4	15	30	2.1
	%	3.3	16.7	16.7	13.3	50.0	100	
Remove weeds and diseased turf.	N	0	7	4	6	13	30	2.2
	%	0.0	23.3	13.3	20.0	43.3	100	
Apply chemicals to control insects and fungus.	N	0	8	5	2	15	30	2.2
	%	0.0	26.7	16.7	6.7	50.0	100	
Apply chemicals to control weeds.	N	0	3	3	11	13	30	1.9
	%	0.0	10.0	10.0	36.7	43.3	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Test soils for nutrient content.	N	0	0	0	6	24	30	1.2
	%	0.0	0.0	0.0	20.0	80.0	100	
Fertilize based on soil tests.	N	0	0	5	5	20	30	1.5
	%	0.0	0.0	16.7	16.7	66.7	100	
Top-dress greens and trees with prepared soil mix.	N	0	0	6	17	7	30	2.0
	%	0.0	0.0	20.0	56.7	23.3	100	
Perform vertical mowing, spiking and thatching.	N	0	6	4	14	6	30	2.3
	%	0.0	20.0	13.3	46.7	20.0	100	
Maintenance of Fairways and Traps								
Add and rake sand in traps.	N	7	9	5	3	6	30	3.3
	%	23.3	30.0	16.7	10.0	20.0	100	
Mow and trim fairways.	N	4	13	2	1	10	30	3.0
	%	13.3	43.3	6.7	3.3	33.3	100	
Water fairways.	N	1	0	1	1	27	30	1.2
	%	3.3	0.0	3.3	3.3	90.0	100	
Clean drains.	N	0	0	2	10	18	30	1.5
	%	0.0	0.0	6.7	33.3	60.0	100	
Reseed worn spots on fairways.	N	0	0	0	11	19	30	1.4
	%	0.0	0.0	0.0	36.7	63.3	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Repair divots.	N	5	4	5	2	14	30	2.5
	%	16.7	13.3	16.7	6.7	46.7	100	
Spray chemicals to control weeds, insects, and disease.	N	0	2	8	7	13	30	2.0
	%	0.0	6.7	26.7	23.3	43.3	100	
Fertilize based on soil tests.	N	0	2	4	3	21	30	1.6
	%	0.0	6.7	13.3	10.0	70.0	100	
Set boundaries.	N	0	1	7	6	16	30	1.8
	%	0.0	3.3	23.3	20.0	53.3	100	
Maintain paths and signs.	N	1	1	9	8	11	30	2.1
	%	3.3	3.3	30.0	26.7	36.7	100	
Trim trees and shrubs.	N	0	4	5	16	5	30	2.3
	%	0.0	13.3	16.7	53.3	16.7	100	
Maintain and clean ball washers, tee markers, benches, and trash baskets.	N	3	12	5	6	4	30	3.1
	%	10.0	40.0	16.7	20.0	13.3	100	
Records								
Keep employee time records.	N	5	0	4	0	21	30	1.9
	%	16.7	0.0	13.3	0.0	70.0	100	
Keep records of fertilizer and chemicals applied.	N	3	1	3	0	23	30	1.7
	%	10.0	3.3	10.0	0.0	76.7	100	
Keep records of expenditures for all materials used.	N	3	0	1	0	26	30	1.5
	%	10.0	0.0	3.3	0.0	86.7	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Inventory								
Keep current inventory of merchandise for sale: seed, fertilizer, and chemicals.	N	0	1	0	3	26	30	1.2
	%	0.0	3.3	0.0	10.0	86.7	100	
Check received merchandise against invoice listings.	N	1	2	0	3	24	30	1.4
	%	3.3	6.7	0.0	10.0	80.0	100	
Check invoices for math errors.	N	3	1	0	1	25	30	1.5
	%	10.0	3.3	0.0	3.3	83.3	100	
Take annual inventory for tax purposes.	N	0	0	0	2	28	30	1.1
	%	0.0	0.0	0.0	6.7	93.3	100	
Store received seed, fertilizer, and chemicals.	N	2	3	2	12	11	30	2.1
	%	6.7	10.0	6.7	40.0	36.7	100	
Arrange for transportation of materials purchased.	N	1	0	3	2	24	30	1.4
	%	3.3	0.0	10.0	6.7	80.0	100	
Order replacement and/or new seed, fertilizer, and chemicals.	N	1	0	3	2	24	30	1.4
	%	3.3	0.0	10.0	6.7	80.0	100	
Maintenance								
Keep work and storage areas neat and clean.	N	9	12	5	0	4	30	3.7
	%	30.0	40.0	16.7	0.0	13.3	100	
Clean and sharpen hand tools.	N	7	9	11	0	3	30	3.6
	%	23.3	30.0	36.7	0.0	10.0	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Perform light maintenance of business vehicles or tractor - oil level, tire pressure, battery, and radiator water levels.	N	17	5	4	0	4	30	4.0
	%	56.7	16.7	13.3	0.0	13.3	100	
Perform minor tune-up of business vehicle or tractor by replacement of spark plugs and ignition points.	N	5	3	7	4	11	30	2.6
	%	16.7	10.0	23.3	13.3	36.7	100	
Change oil and grease business vehicle or tractor.	N	6	4	14	1	5	30	3.2
	%	20.0	13.3	46.7	3.3	16.7	100	
Repair storage building and repair shop.	N	3	1	2	6	18	30	1.8
	%	10.0	3.3	6.7	20.0	60.0	100	
Perform electrical repair of light switches and extension cords.	N	2	1	3	5	19	30	1.7
	%	6.7	3.3	6.7	16.7	63.3	100	
Paint storage buildings, benches, and repair shop.	N	0	1	0	19	10	30	1.7
	%	0.0	3.3	0.0	63.3	33.3	100	
Perform plumbing repair by replacement of worn gaskets or valves.	N	2	0	3	10	15	30	1.8
	%	6.7	0.0	10.0	33.3	50.0	100	
Clean and oil electric motors.	N	1	0	4	9	16	30	1.7
	%	3.3	0.0	13.3	30.0	53.3	100	
Order repair parts for vehicles and/or other equipment.	N	2	1	3	5	19	30	1.7
	%	6.7	3.3	10.0	16.7	63.3	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Service and repair of irrigation system.	N	0	0	6	9	15	30	1.7
	%	0.0	0.0	20.0	30.0	50.0	100	
Perform maintenance and repair of small gas engines (e.g. lawnmowers, edgers).	N	6	6	2	2	14	30	2.6
	%	20.0	20.0	6.7	6.7	46.7	100	
Clean and sharpen mower blades.	N	4	4	11	3	8	30	2.8
	%	13.3	13.3	36.7	10.0	26.7	100	
Clean and repair dusters and sprayers.	N	2	1	7	6	14	30	2.0
	%	6.7	3.3	23.3	20.0	46.7	100	
Management								
Understand and comply with business laws.	N	9	1	1	1	18	30	2.4
	%	30.0	3.3	3.3	3.3	60.0	100	
Identify labor needs.	N	2	0	0	1	27	30	1.3
	%	6.7	0.0	0.0	3.3	90.0	100	
Recruit employees.	N	0	0	0	2	28	30	1.1
	%	0.0	0.0	0.0	6.7	93.3	100	
Interview and select employees.	N	0	0	0	1	29	30	1.0
	%	0.0	0.0	0.0	3.3	96.7	100	
Designate employee work assignments.	N	1	0	0	1	28	30	1.2
	%	3.3	0.0	0.0	3.3	93.3	100	
Supervise employees.	N	2	1	0	0	27	30	1.4
	%	6.7	3.3	0.0	0.0	90.0	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Evaluate employee performance.	N	2	0	1	0	27	30	1.3
	%	6.7	0.0	3.3	0.0	90.0	100	
Recommend personnel actions such as promoting or firing.	N	0	0	0	0	30	30	1.0
	%	0.0	0.0	0.0	0.0	100	100	
Identify and select producers and suppliers of seed, fertilizer, and chemicals.	N	0	0	0	1	29	30	1.0
	%	0.0	0.0	0.0	3.3	96.7	100	
Establish and enforce safety regulations.	N	3	0	0	1	26	30	1.4
	%	10.0	0.0	0.0	3.3	86.7	100	
Allocate monies in preparing working budget.	N	0	0	0	0	30	30	1.0
	%	0.0	0.0	0.0	0.0	100	100	
Participate in horticulture trade organizations.	N	0	0	2	1	27	30	1.2
	%	0.0	0.0	6.7	3.3	90.0	100	

Table 12

Competencies Most Frequently Performed

by

All Golf Course Employees

Competency		Daily (5)	Once a Week (4)	Once a Mouth (3)	Once a Year (2)	Never (1)	Total	Mean
Perform light maintenance of business vehicles or tractor - oil level, tire pressure, battery, and radiator water levels.	N	27	9	4	1	4	45	4.2
	%	60.0	20.0	8.9	2.2	8.9	100	
Keep work and storage areas neat and clean.	N	16	16	8	1	4	45	3.9
	%	35.6	35.6	17.8	2.2	8.9	100	
Clean and sharpen hand tools.	N	12	15	14	1	3	45	3.7
	%	26.7	33.3	31.1	2.2	6.7	100	
Mow and trim greens.	N	21	12	0	1	11	45	3.7
	%	46.7	26.7	0.0	2.2	24.4	100	
Move the cup.	N	11	18	3	0	13	45	3.3
	%	24.4	40.0	6.7	0.0	28.9	100	
Maintain and clean ball washers, tee markers, benches, and trash baskets.	N	6	21	6	6	6	45	3.3
	%	13.3	46.7	13.3	13.3	13.3	100	
Water greens.	N	15	11	2	1	16	45	3.2
	%	33.3	24.4	4.4	2.2	35.6	100	
Mow and trim fairways.	N	7	18	5	3	12	45	3.1
	%	15.6	40.0	11.1	6.7	26.7	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Change oil and grease business vehicle or tractor.	N	6	4	28	1	6	45	3.1
	%	13.3	8.9	62.2	2.2	13.3	100	
Add and rake sand in traps.	N	9	12	7	5	12	45	3.0
	%	30.0	26.7	15.6	11.1	26.7	100	

Table 13

Frequency of Performance of Competencies

by

Greenhouse Production Management and Sales Employees

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Preparation of the Medium								
Test soil for N, P, K and soluable salts.	N	0	0	3	5	15	23	1.5
	%	0.0	0.0	13.0	21.7	65.2	100	
Identify greenhouse soil materials.	N	3	3	2	3	12	23	2.2
	%	13.0	13.0	8.7	13.0	52.2	100	
Determine soil mix for specific plant requirements.	N	5	2	2	1	13	23	2.3
	%	21.7	8.7	8.7	4.3	56.5	100	
Shred or screen the soil.	N	1	2	1	3	16	23	1.7
	%	4.3	8.7	4.3	13.0	69.6	100	
Mix the soil with plant growing materials.	N	5	4	1	0	13	23	2.5
	%	21.7	17.4	4.3	0.0	56.5	100	
Sterilize mixed soils.	N	1	3	2	0	17	23	1.7
	%	4.3	13.0	8.7	0.0	73.9	100	
Fill benches and pots.	N	3	5	0	1	14	23	2.2
	%	13.0	21.7	0.0	4.3	60.9	100	
Mix fertilizer into soil.	N	6	2	2	0	13	23	2.5
	%	26.1	8.7	8.7	0.0	56.5	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Level the soil surface.	N	2	1	2	1	17	23	1.7
	%	8.7	4.3	8.7	4.3	73.9	100	
Spread peat moss on top of soil mix.	N	1	2	1	2	17	23	1.6
	%	4.3	8.7	4.3	8.7	73.9	100	
Mark soil for planting.	N	0	0	2	1	20	23	1.2
	%	0.0	0.0	8.7	4.3	87.0	100	
Propagation								
Select the proper time to plant annuals and seasonal varieties.	N	2	3	3	1	14	23	2.0
	%	8.7	13.0	13.0	4.3	60.9	100	
Select seed and bulbs.	N	1	1	3	5	13	23	1.8
	%	4.3	4.3	13.0	21.7	56.5	100	
Select cuttings and seedling stock.	N	1	1	2	3	16	23	1.6
	%	4.3	4.3	8.7	13.0	69.6	100	
Clean and treat seed.	N	0	0	0	1	22	23	1.0
	%	0.0	0.0	0.0	4.3	95.7	100	
Sow seed for greenhouse stock.	N	1	2	5	1	14	23	1.9
	%	4.3	8.7	21.7	4.3	60.9	100	
Transplant seedlings to pots.	N	1	4	1	3	14	23	1.9
	%	4.3	17.4	4.3	13.0	60.9	100	
Plant cuttings in flats.	N	0	2	3	2	16	23	1.6
	%	0.0	8.7	13.0	8.7	69.6	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Pencil label planted specimens.	N	2	3	2	0	16	23	1.9
	%	8.7	13.0	8.7	0.0	69.6	100	
Keep seeds and bulbs at proper temperature.	N	6	0	1	2	14	23	2.2
	%	26.1	0.0	4.3	8.7	60.9	100	
Identify types of horticultural plants.	N	6	4	1	0	12	23	2.7
	%	26.1	17.4	4.3	0.0	52.2	100	
Environmental Control and Culture								
Water nursery stock.	N	4	3	2	0	14	23	2.3
	%	17.4	13.0	8.7	0.0	60.7	100	
Thin nursery stock.	N	1	0	1	0	21	23	1.3
	%	4.3	0.0	4.3	0.0	91.3	100	
Prune and thin plants.	N	2	1	1	1	18	23	1.6
	%	8.7	4.3	4.3	4.3	78.3	100	
Fertilize plants.	N	2	5	5	2	9	23	2.5
	%	8.7	21.7	21.7	8.7	39.1	100	
Test soils for nutrients.	N	1	0	4	0	18	23	1.5
	%	4.3	0.0	17.4	0.0	78.3	100	
Pinch potted plants.	N	1	5	2	1	14	23	2.0
	%	4.3	21.7	8.7	4.3	60.9	100	
Control temperature with fans and heaters.	N	10	1	0	0	12	23	2.9
	%	43.5	4.3	0.0	0.0	52.2	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Control humidity with ventilating fans and humidifiers.	N	7	1	0	0	15	23	2.3
	%	30.4	4.3	0.0	0.0	65.2	100	
Control both the type and amount of light.	N	4	3	1	0	15	23	2.2
	%	17.4	13.0	4.3	0.0	65.2	100	
Force bulbs.	N	1	3	2	4	13	23	1.9
	%	4.3	13.0	8.7	17.4	56.5	100	
Force potted plants to bloom at seasonal times.	N	4	4	1	1	13	23	2.3
	%	17.4	17.4	4.3	4.3	56.5	100	
Cultivate beds for aeration.	N	0	1	0	2	20	23	1.2
	%	0.0	4.3	0.0	8.7	87.0	100	
Disease, Weed, and Pest Control								
Control weeds with chemicals.	N	0	0	3	3	17	23	1.4
	%	0.0	0.0	13.0	13.0	73.9	100	
Use plastic and tools to provide weed control.	N	1	0	3	1	18	23	1.5
	%	4.3	0.0	13.0	4.3	78.3	100	
Set traps and/or poisons for pests.	N	1	3	0	4	15	23	1.7
	%	4.3	13.0	0.0	17.4	65.2	100	
Fumigate greenhouse.	N	0	5	6	0	12	23	2.2
	%	0.0	21.7	26.1	0.0	52.2	100	
Identify and remove diseased plants.	N	6	5	2	0	10	23	2.9
	%	26.1	21.7	8.7	0.0	43.5	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Control plant insects and diseases with chemicals.	N	2	7	3	0	11	23	2.5
	%	8.7	30.4	13.0	0.0	47.8	100	
Harvesting								
Remove plants from beds.	N	2	4	1	1	15	23	2.0
	%	8.7	17.4	4.3	4.3	65.2	100	
Cut flowers and plants.	N	5	5	1	2	10	23	2.7
	%	21.7	21.7	4.3	8.7	43.5	100	
Harvest seed.	N	1	0	0	0	22	23	1.2
	%	4.3	0.0	0.0	0.0	95.7	100	
Clean and grade seed.	N	0	0	0	0	23	23	1.0
	%	0.0	0.0	0.0	0.0	100	100	
Bag roots of shrubs.	N	0	0	0	0	23	23	1.0
	%	0.0	0.0	0.0	0.0	100	100	
Pot flowering plants for sale.	N	4	4	0	2	13	23	2.3
	%	17.4	17.4	0.0	8.7	56.5	100	
Label harvested plants by common names.	N	3	2	1	0	17	23	1.9
	%	13.0	8.7	4.3	0.0	73.9	100	
Storage and Packaging								
Bunch, pack, or wrap flowers and other plants.	N	12	2	1	0	8	23	3.4
	%	52.2	8.7	4.3	0.0	34.8	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Deliver produce to warehouse storage.	N	2	1	3	0	17	23	1.7
	%	8.7	4.3	13.0	0.0	73.9	100	
Place cut flowers in environmental storage.	N	12	2	1	1	7	23	3.5
	%	52.2	8.7	4.3	4.3	30.4	100	
Label storage bins and bags.	N	2	1	1	2	17	23	1.7
	%	8.7	4.3	4.3	8.7	73.9	100	
Remove dead and diseased blooms and plant parts.	N	10	3	0	0	10	23	3.1
	%	43.5	13.0	0.0	0.0	43.5	100	
Pack care instructions with plants.	N	12	2	1	0	8	23	3.4
	%	52.2	8.7	4.3	0.0	34.8	100	
Sales								
Describe to consumers the purposes and qualities of merchandise for sale.	N	21	2	0	0	0	23	4.9
	%	91.3	8.7	0.0	0.0	0.0	100	
Identify customer needs and wants.	N	21	1	0	1	0	23	4.8
	%	91.3	4.3	0.0	4.3	0.0	100	
Take orders for sales by telephone.	N	22	1	0	0	0	23	5.0
	%	95.7	4.3	0.0	0.0	0.0	100	
Follow-up sales to determine customer satisfaction and as a guide for next year's plantings.	N	5	2	4	2	10	23	2.6
	%	21.7	8.7	17.4	8.7	43.5	100	
Make cost estimates on customer orders.	N	18	3	1	1	0	23	4.7
	%	85.7	13.0	4.3	4.3	0.0	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Identify horticultural plants.	N	14	4	1	0	4	23	4.0
	%	60.9	17.4	4.3	0.0	17.4	100	
Solicit sales by telephone.	N	6	1	3	1	12	23	2.5
	%	26.1	4.3	13.0	4.3	52.2	100	
Use effective interpersonal relationships in dealing with customers.	N	19	2	1	0	1	23	4.7
	%	82.6	8.7	4.3	0.0	4.3	100	
Prepare advertising materials.	N	4	5	6	0	8	23	2.9
	%	17.4	21.7	26.1	0.0	34.8	100	
Demonstrate arrangement features of products.	N	13	1	2	4	3	23	3.7
	%	56.5	4.3	8.7	17.4	13.0	100	
Use various types of advertising such as industry publications and mailing lists.	N	4	2	4	3	10	23	2.4
	%	17.4	8.7	17.4	13.0	43.5	100	
Write up customer orders.	N	22	1	0	0	0	23	5.0
	%	95.7	4.3	0.0	0.0	0.0	100	
Advise customers on environmental control and shelf life of plants.	N	19	2	0	0	2	23	4.6
	%	82.6	8.7	0.0	0.0	8.7	100	
Send plant care instructions to retailers.	N	8	2	1	1	11	23	2.8
	%	34.8	8.7	4.3	4.3	47.8	100	
Keep price lists and catalogs current.	N	5	4	4	1	9	23	2.9
	%	21.7	17.4	17.4	4.3	39.1	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Records								
Keep records of receipts and expenses.	N	8	2	3	0	10	23	2.9
	%	34.8	8.7	13.0	0.0	43.5	100	
Make out and mail bills to collect accounts due.	N	2	0	11	0	10	23	2.3
	%	8.7	0.0	47.8	0.0	43.5	100	
Check credit references of customers.	N	7	1	4	1	10	23	2.7
	%	30.4	4.3	17.4	4.3	43.5	100	
Perform filing tasks.	N	10	1	4	1	7	23	3.3
	%	43.5	4.3	17.4	4.3	30.4	100	
Perform typing and mailing tasks.	N	6	0	4	0	13	23	2.4
	%	26.1	0.0	17.4	0.0	56.5	100	
Keep employee work records.	N	3	3	3	0	14	23	2.2
	%	13.0	13.0	13.0	0.0	60.9	100	
Prepare employee payroll.	N	1	6	2	0	14	23	2.1
	%	4.3	26.1	8.7	0.0	60.9	100	
Pay accounts payable.	N	2	1	7	0	13	23	2.1
	%	8.7	4.3	30.4	0.0	56.5	100	
Assist in records audit.	N	1	0	3	5	14	23	1.7
	%	4.3	0.0	13.0	21.7	60.9	100	
Prepare income tax and other government reports.	N	1	0	2	3	17	23	1.5
	%	4.3	0.0	8.7	13.0	73.9	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Keep annual depreciation schedule.	N	0	0	1	5	17	23	1.3
	%	0.0	0.0	4.3	21.7	73.9	100	
Keep customer credit records.	N	4	1	5	1	12	23	2.3
	%	17.4	4.3	21.7	4.3	52.2	100	
Use adding machine and/or other tabulation devices in balancing accounts.	N	12	1	2	0	8	23	3.4
	%	52.2	4.3	8.7	0.0	34.8	100	
Keep greenhouse crop production record.	N	3	2	2	2	14	23	2.0
	%	13.0	8.7	8.7	8.7	60.9	100	
Processing and Shipment								
Quality sort prior to shipment.	N	9	2	0	0	12	23	2.8
	%	39.1	8.7	0.0	0.0	52.2	100	
Make out shipping labels and invoices.	N	8	1	1	0	13	23	2.6
	%	34.8	4.3	4.3	0.0	56.5	100	
Package orders for shipment.	N	9	3	1	0	10	23	3.0
	%	39.1	13.0	4.3	0.0	43.5	100	
Arrange transportation for shipments of plant materials.	N	8	1	1	0	13	23	2.6
	%	34.8	4.3	4.3	0.0	56.5	100	
Deliver flowers and/or other plants to wholesaler and/or retailer.	N	3	2	1	1	16	23	1.9
	%	13.0	8.7	4.3	4.3	69.6	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Clean and sharpen hand tools.	N	2	2	4	2	13	23	2.0
	%	8.7	8.7	17.4	8.7	56.5	100	
Light maintenance of business vehicle or tractor: oil level, tire pressure. battery & radiator water levels.	N	3	2	0	0	18	23	1.8
	%	13.0	8.7	0.0	0.0	78.3	100	
Minor tune-up of business vehicle or tractor by replacement of spark plugs and ignition points.	N	0	1	0	2	20	23	1.2
	%	0.0	4.3	0.0	8.7	87.0	100	
Change oil and grease business vehicle or tractor.	N	1	1	1	1	19	23	1.4
	%	4.3	4.3	4.3	4.3	82.6	100	
Repair frames, benches and other greenhouse structures.	N	2	0	2	6	13	23	1.8
	%	8.7	0.0	8.7	26.1	56.5	100	
Electrical repair of light switches & extension cords.	N	1	0	3	3	16	23	1.6
	%	4.3	0.0	13.0	13.0	69.6	100	
Paint frames and greenhouse structures.	N	0	0	0	8	15	23	1.3
	%	0.0	0.0	0.0	34.8	65.2	100	
Plumbing repair by replacement of worn gasket or valves in the watering system.	N	2	0	2	3	16	23	1.7
	%	8.7	0.0	8.7	13.0	69.6	100	
Clean and oil electric motors.	N	1	0	4	2	16	23	1.6
	%	4.3	0.0	17.4	8.7	69.6	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Inventory								
Keep current inventory of plants and supplies for sale.	N	8	4	4	2	5	23	3.3
	%	34.8	17.4	17.4	8.7	21.7	100	
Check received merchandise against invoice listings.	N	11	5	4	0	3	23	3.9
	%	47.8	21.7	17.4	0.0	13.0	100	
Check invoices for math errors.	N	9	2	2	0	10	23	3.0
	%	39.1	8.7	8.7	0.0	43.5	100	
Take annual inventory for tax purposes.	N	0	0	0	14	9	23	1.6
	%	0.0	0.0	0.0	60.9	39.1	100	
Store received materials and supplies.	N	9	4	4	0	6	23	3.4
	%	39.1	17.4	17.4	0.0	26.1	100	
Arrange for transportation of plant materials and supplies purchased.	N	8	0	1	0	14	23	2.5
	%	34.8	0.0	4.3	0.0	60.9	100	
Order seed, fertilizer, chemicals, and/or plant materials.	N	3	2	5	2	11	23	2.3
	%	13.0	8.7	21.7	8.7	47.8	100	
Keep current inventory of repair parts, fertilizer, seed, and soil mix supplies.	N	3	1	4	2	13	23	2.1
	%	13.0	4.3	17.4	8.7	56.5	100	
Maintenance								
Keep work, storage, and delivery areas neat and clean.	N	13	5	0	0	5	23	3.9
	%	56.5	21.7	0.0	0.0	21.7	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Order repair parts for vehicles and/or other equipment.	N	1	0	3	4	15	23	1.6
	%	4.3	0.0	13.0	17.4	65.2	100	
Glaze windows.	N	0	0	0	6	17	23	1.3
	%	0.0	0.0	0.0	26.1	73.9	100	
Maintain and repair small gas engines.	N	1	0	0	1	21	23	1.2
	%	4.3	0.0	0.0	4.3	91.3	100	
Clean and repair dusters and sprayers.	N	2	2	1	2	16	23	1.8
	%	8.7	8.7	4.3	8.7	69.6	100	
Maintain and repair power tillers and cultivators.	N	0	0	2	3	18	23	1.3
	%	0.0	0.0	8.7	13.0	78.3	100	
Service heaters and boilers.	N	2	0	2	1	18	23	1.6
	%	8.7	0.0	8.7	4.3	78.3	100	
Management								
Report and pay federal, state and local taxes.	N	0	2	7	1	13	23	1.9
	%	0.0	8.7	30.4	4.3	56.5	100	
Understand and comply with business laws.	N	12	1	1	0	9	23	3.3
	%	52.2	4.3	4.3	0.0	39.1	100	
Administer social security and other employee benefit programs.	N	1	6	3	0	13	23	2.2
	%	4.3	26.1	13.0	0.0	56.5	100	
Identify labor needs.	N	4	5	2	0	12	23	2.5
	%	17.4	21.7	8.7	0.0	52.2	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Recruit employees.	N	1	1	1	8	12	23	1.7
	%	4.3	4.3	4.3	34.8	52.2	100	
Interview and select employees.	N	1	1	1	10	10	23	1.8
	%	4.3	4.3	4.3	43.5	43.5	100	
Designate employee work assignments.	N	12	2	1	1	7	23	3.5
	%	52.2	8.7	4.3	4.3	30.4	100	
Supervise employees.	N	14	1	1	1	6	23	3.7
	%	60.9	4.3	4.3	4.3	26.1	100	
Train new employees.	N	8	1	3	3	8	23	2.9
	%	34.8	4.3	13.0	13.0	34.8	100	
Evaluate employee performance.	N	9	1	3	0	10	23	3.0
	%	39.1	4.3	13.0	0.0	43.5	100	
Perform personnel actions such as promoting or firing.	N	6	1	4	2	12	23	2.6
	%	26.1	4.3	17.4	8.7	52.2	100	
Establish employee wages, hours, and working conditions.	N	4	1	0	6	12	23	2.1
	%	17.4	4.3	0.0	26.1	52.2	100	
Determine business credit needs.	N	5	0	1	4	13	23	2.1
	%	21.7	0.0	4.3	17.4	56.5	100	
Locate sources of, and secure credit.	N	3	0	2	3	15	23	1.8
	%	13.0	0.0	8.7	13.0	65.2	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Determine need for, and purchase comprehensive business insurance.	N	1	0	0	9	13	23	1.6
	%	4.3	0.0	0.0	39.1	56.5	100	
Select and purchase plants, seeds, fertilizer and equipment.	N	5	3	3	2	10	23	2.6
	%	21.7	13.0	13.0	8.7	43.5	100	
Determine kinds and amounts of flowers and other plants to stock.	N	11	1	1	3	7	23	3.3
	%	47.8	4.3	4.3	13.0	30.4	100	
Identify and select producers and suppliers of flowers, plants, and materials.	N	9	1	0	3	10	23	2.8
	%	39.1	4.3	0.0	13.0	43.5	100	
Establish and enforce safety regulations.	N	10	1	0	0	12	23	2.9
	%	43.5	4.3	0.0	0.0	52.2	100	
Allocate monies in preparing working budget.	N	4	0	2	2	15	23	2.0
	%	17.4	0.0	8.7	8.7	65.2	100	
Analyze the business enterprises on cost and return basis.	N	3	2	3	3	12	23	2.2
	%	13.0	8.7	13.0	13.0	52.2	100	
Participate in horticulture trade organizations.	N	3	0	4	3	13	23	2.0
	%	13.0	0.0	17.4	13.0	56.5	100	
Plan business advertising.	N	5	1	2	4	11	23	2.3
	%	21.7	4.3	8.7	17.4	47.8	100	
Negotiate sales contracts.	N	3	0	1	3	16	23	1.7
	%	13.0	0.0	4.3	13.0	69.6	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Plan varieties to be planted according to demand and availability of seed, bulbs, or scion stock.	N	3	1	1	4	14	23	1.9
	%	13.0	4.3	4.3	17.4	60.9	100	
Develop relationships with buyers to get new markets and secure sales agreements.	N	6	0	1	3	13	23	2.3
	%	26.1	0.0	4.3	13.0	56.5	100	
Arrange with commercial seed houses for supplies.	N	3	0	3	4	13	23	2.0
	%	13.0	0.0	13.0	17.4	56.5	100	

In contrast, the most frequently performed competencies by greenhouse production labor employees were in the broad areas of preparation of medium, environmental control and culture, and storage and packaging. Competencies most frequently performed by this group of workers included controlling temperature with fans and heaters; identifying and removing diseased plants; cutting flowers and plants; removing dead and diseased blooms and plant parts; describing to consumers the purposes and qualities of merchandise for sale; identifying customer needs and wants; identifying horticultural plants; writing up customer orders; advising customers on environmental control and self life of plants; and keeping work, storage, and delivery areas neat and clean. It was further noted that only two competencies were performed on a weekly basis. These two competencies were removing dead and diseased blooms and plant parts and cleaning and sharpening hand tools. All other competencies were performed, in the main, once a month, once a year or never. These observations were made based on data presented in Table 14.

Data presented in Table 15 reveal those competencies performed most often by all greenhouse production employees. Of the 19 competencies listed, approximately 63 percent (12) were from the broad areas of sales, processing and shipment, and management, whereas the remaining 37 percent (7) were from the areas of preparation of medium, propagation, environmental control and culture and storage and packaging.

Frequency of performance of competencies by landscape service management and sales employees are presented in Table 16. For this group of employees, competencies performed most frequently were in the sales and landscape planning areas. Those competencies performed once a week and/or more often were using effective interpersonal relationships in dealing with customers, identifying customer needs and wants, consulting with client to find out his needs and wishes, designating employee work assignments, and supervising employees.

For those persons employed as landscape service labor employees, only three competencies were performed by a majority of the workers on a daily or weekly basis. These two competencies were cleaning and sharpening hand tools, performing light maintenance of business vehicles or tractors, operating business vehicle with a standard transmission. These observations were made based on data presented in Table 17.

Competencies performed once a month or more by all landscape service employees are presented in Table 18. It was interesting to note that of the 5 competencies listed, 4 were performed either daily or once a week by the majority of the employees surveyed.

Table 14

Frequency of Performance of Competencies

by

Greenhouse Production Labor Employees

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Preparation of the Medium								
Test soil for N, P, K and soluable salts.	N	0	0	3	3	9	15	1.6
	%	0.0	0.0	20.0	20.0	60.0	100	
Identify greenhouse soil materials.	N	5	0	5	2	3	15	3.1
	%	33.3	0.0	33.3	13.3	20.0	100	
Determine soil mix for specific plant requirements.	N	5	1	3	1	5	15	3.0
	%	33.3	6.7	20.0	6.7	33.3	100	
Shred or screen the soil.	N	3	4	3	2	3	15	3.1
	%	20.0	26.7	20.0	13.3	20.0	100	
Mix the soil with plant growing materials.	N	4	3	4	1	3	15	3.3
	%	26.7	20.0	26.7	6.7	20.0	100	
Sterilize mixed soils.	N	1	1	5	0	8	15	2.1
	%	6.7	6.7	33.3	0.0	53.3	100	
Fill benches and pots.	N	2	6	3	3	1	15	3.3
	%	13.3	40.0	20.0	20.0	6.7	100	
Mix fertilizer into soil.	N	4	2	5	0	4	15	3.1
	%	26.7	13.3	33.3	0.0	26.7	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Level the soil surface.	N	2	6	2	1	4	15	3.1
	%	13.3	40.0	13.3	6.7	26.7	100	
Spread peat moss on top of soil mix.	N	0	2	4	2	7	15	2.1
	%	0.0	13.3	26.7	13.3	46.7	100	
Mark soil for planting.	N	2	2	4	1	6	15	2.5
	%	13.3	13.3	26.7	6.7	40.0	100	
Propagation								
Select the proper time to plant annuals and seasonal varieties.	N	0	2	3	3	7	15	2.0
	%	0.0	13.3	20.0	20.0	46.7	100	
Select seed and bulbs.	N	0	1	2	5	7	15	1.8
	%	0.0	6.7	13.3	33.3	46.7	100	
Select cuttings and seedling stock.	N	1	2	2	3	7	15	2.1
	%	6.7	13.3	13.3	20.0	46.7	100	
Clean and treat seed.	N	0	0	0	1	14	15	1.1
	%	0.0	0.0	0.0	6.7	93.3	100	
Sow seed for greenhouse stock.	N	0	1	4	4	6	15	2.0
	%	0.0	6.7	26.7	26.7	40.0	100	
Transplant seedlings to pots.	N	2	3	2	3	5	15	2.6
	%	13.3	20.0	13.3	20.0	33.3	100	
Plant cuttings in flats.	N	1	3	3	2	6	15	2.4
	%	6.7	20.0	20.0	13.3	40.0	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Pencil label planted specimens.	N	2	4	2	1	6	15	2.7
	%	13.3	26.7	13.3	6.7	40.0	100	
Keep seeds and bulbs at proper temperature.	N	3	2	3	0	7	15	2.6
	%	20.0	13.3	20.0	0.0	46.7	100	
Identify types of horticultural plants.	N	5	2	3	0	5	15	3.1
	%	33.3	13.3	20.0	0.0	33.3	100	
Environmental Control and Culture								
Water nursery stock.	N	4	3	1	0	7	15	2.8
	%	26.7	20.0	6.7	0.0	46.7	100	
Thin nursery stock.	N	2	1	3	0	9	15	2.1
	%	13.3	6.7	20.0	0.0	60.0	100	
Prune and thin plants.	N	3	1	3	1	7	15	2.5
	%	20.0	6.7	20.0	6.7	46.7	100	
Fertilize plants.	N	2	6	4	1	2	15	3.3
	%	13.3	40.0	26.7	6.7	13.3	100	
Test soils for nutrients.	N	1	0	3	3	8	15	1.9
	%	6.7	0.0	20.0	20.0	53.3	100	
Pinch potted plants.	N	1	4	2	1	7	15	2.4
	%	6.7	26.7	13.3	6.7	46.7	100	
Control temperature with fans and heaters.	N	8	0	2	1	4	15	3.5
	%	53.3	0.0	13.3	6.7	26.7	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Control humidity with ventilating fans and humidifiers.	N	7	0	3	0	5	15	3.3
	%	46.7	0.0	20.0	0.0	33.3	100	
Control both the type and amount of light.	N	4	3	2	1	5	15	3.0
	%	26.7	20.0	13.3	6.7	33.3	100	
Force bulbs.	N	2	1	1	3	8	15	2.1
	%	13.3	6.7	6.7	20.0	53.3	100	
Force potted plants to bloom at seasonal times.	N	3	1	3	0	8	15	2.4
	%	20.0	6.7	20.0	0.0	53.3	100	
Cultivate beds for aeration.	N	1	3	4	2	5	15	2.5
	%	6.7	20.0	26.7	13.3	33.3	100	
Disease, Weed, and Pest Control								
Control weeds with chemicals.	N	0	0	2	6	7	15	1.7
	%	0.0	0.0	13.3	40.0	46.7	100	
Use plastic and tools to provide weed control.	N	1	0	3	2	9	15	1.8
	%	6.7	0.0	20.0	13.3	60.0	100	
Set traps and/or poisons for pests.	N	1	2	3	3	6	15	2.3
	%	6.7	13.3	20.0	20.0	40.0	100	
Fumigate greenhouse.	N	1	2	6	0	6	15	2.5
	%	6.7	13.3	40.0	0.0	40.0	100	
Identify and remove diseased plants.	N	3	6	3	1	2	15	3.5
	%	20.0	40.0	20.0	6.7	13.3	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Control plant insects and diseases with chemicals.	N	1	3	6	0	5	15	2.7
	%	6.7	20.0	40.0	0.0	33.3	100	
Harvesting								
Remove plants from beds.	N	3	3	5	1	3	15	3.1
	%	20.0	20.0	33.3	6.7	20.0	100	
Cut flowers and plants.	N	6	4	1	1	3	15	3.6
	%	40.0	26.7	6.7	6.7	20.0	100	
Harvest seed.	N	1	0	0	0	14	15	1.3
	%	6.7	0.0	0.0	0.0	93.3	100	
Clean and grade seed.	N	0	0	0	0	15	15	1.0
	%	0.0	0.0	0.0	0.0	100	100	
Bag roots of shrubs.	N	1	0	0	1	13	15	1.3
	%	6.7	0.0	0.0	6.7	86.7	100	
Pot flowering plants for sale.	N	5	3	1	1	5	15	3.1
	%	33.3	20.0	6.7	6.7	33.3	100	
Label harvested plants by common names.	N	3	3	3	1	5	15	2.9
	%	20.0	20.0	20.0	6.7	33.3	100	
Storage and Packaging								
Bunch, pack, or wrap flowers and other plants.	N	6	2	1	0	6	15	3.1
	%	40.0	13.3	6.7	0.0	40.0	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Deliver produce to warehouse storage.	N	1	3	1	0	10	15	2.0
	%	6.7	20.0	6.7	0.0	66.7	100	
Place cut flowers in environmental storage.	N	5	3	1	0	6	15	3.1
	%	33.3	20.0	6.7	0.0	40.0	100	
Label storage bins and bags.	N	0	4	2	0	9	15	2.1
	%	0.0	26.7	13.3	0.0	60.0	100	
Remove dead and diseased blooms and plant parts.	N	7	5	1	1	1	15	4.1
	%	46.7	33.3	6.7	6.7	6.7	100	
Pack care instructions with plants.	N	5	0	3	0	7	15	2.7
	%	33.3	0.0	20.0	0.0	46.7	100	
Sales								
Describe to consumers the purposes and qualities of merchandise for sale.	N	6	3	1	2	3	15	3.5
	%	40.0	20.0	6.7	13.3	20.0	100	
Identify customer needs and wants.	N	6	4	1	0	4	15	3.5
	%	40.0	26.7	6.7	0.0	26.7	100	
Take orders for sales by telephone.	N	6	1	3	0	5	15	3.2
	%	40.0	6.7	20.0	0.0	33.3	100	
Follow-up sales to determine customer satisfaction and as a guide for next year's plantings.	N	0	0	0	6	9	15	1.4
	%	0.0	0.0	0.0	40.0	60.0	100	
Make cost estimates on customer orders.	N	3	4	0	0	8	15	2.6
	%	20.0	26.7	0.0	0.0	53.3	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Identify horticultural plants.	N	5	3	3	1	3	15	3.4
	%	33.3	20.0	20.0	6.7	20.0	100	
Solicit sales by telephone.	N	3	0	2	0	10	15	2.1
	%	20.0	0.0	13.3	0.0	66.7	100	
Use effective interpersonal relationships in dealing with customers.	N	5	3	2	0	5	15	3.2
	%	33.3	20.0	13.3	0.0	33.3	100	
Prepare advertising materials.	N	3	0	1	1	10	15	2.0
	%	20.0	0.0	6.7	6.7	66.7	100	
Demonstrate arrangement features of products.	N	5	2	0	2	6	15	2.9
	%	33.3	13.3	0.0	13.3	40.0	100	
Use various types of advertising such as industry publications and mailing lists.	N	0	1	1	1	12	15	1.4
	%	0.0	6.7	6.7	6.7	80.0	100	
Write up customer orders.	N	5	3	4	0	3	15	3.5
	%	33.3	20.0	26.7	0.0	20.0	100	
Advise customers on environmental control and shelf life of plants.	N	5	4	1	2	3	15	3.4
	%	33.3	26.7	6.7	13.3	20.0	100	
Send plant care instructions to retailers.	N	3	0	1	1	10	15	2.0
	%	20.0	0.0	6.7	6.7	66.7	100	
Keep price lists and catalogs current.	N	3	2	0	2	8	15	2.3
	%	20.0	13.3	0.0	13.3	53.3	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Records								
Keep records of receipts and expenses.	N	1	0	0	0	14	15	1.3
	%	6.7	0.0	0.0	0.0	93.3	100	
Make out and mail bills to collect accounts due.	N	1	1	2	0	11	15	1.7
	%	6.7	6.7	13.3	0.0	73.3	100	
Check credit references of customers.	N	1	0	0	2	12	15	1.4
	%	6.7	0.0	0.0	13.3	80.0	100	
Perform filing tasks.	N	1	2	1	0	11	15	1.8
	%	6.7	13.3	6.7	0.0	73.3	100	
Perform typing and mailing tasks.	N	1	1	1	0	12	15	1.6
	%	6.7	6.7	6.7	0.0	80.0	100	
Keep employee work records.	N	1	1	1	0	12	15	1.6
	%	6.7	6.7	6.7	0.0	80.0	100	
Prepare employee payroll.	N	0	0	0	0	15	15	1.0
	%	0.0	0.0	0.0	0.0	100	100	
Pay accounts payable.	N	0	2	0	0	13	15	1.4
	%	0.0	13.3	0.0	0.0	86.7	100	
Assist in records audit.	N	0	1	0	3	11	15	1.4
	%	0.0	6.7	0.0	20.0	73.3	100	
Prepare income tax and other government reports.	N	0	0	0	1	14	15	1.1
	%	0.0	0.0	0.0	6.7	93.3	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Keep annual depreciation schedule.	N	0	0	0	1	14	15	1.1
	%	0.0	0.0	0.0	6.7	93.3	100	
Keep customer credit records.	N	1	0	0	0	14	15	1.3
	%	6.7	0.0	0.0	0.0	93.3	100	
Use adding machine and/or other tabulation devices in balancing accounts.	N	1	1	1	0	12	15	1.6
	%	6.7	6.7	6.7	0.0	80.0	100	
Keep greenhouse crop production record.	N	0	4	3	1	7	15	2.3
	%	0.0	26.7	20.0	6.7	46.7	100	
Processing and Shipment								
Quality sort prior to shipment.	N	4	1	0	1	9	15	2.3
	%	26.7	6.7	0.0	6.7	60.0	100	
Make out shipping labels and invoices.	N	3	1	2	0	9	15	2.3
	%	20.0	6.7	13.3	0.0	60.0	100	
Package orders for shipment.	N	4	1	3	0	7	15	2.7
	%	26.7	6.7	20.0	0.0	46.7	100	
Arrange transportation for shipments of plant materials.	N	3	3	2	0	7	15	2.7
	%	20.0	20.0	13.3	0.0	46.7	100	
Deliver flowers and/or other plants to wholesaler and/or retailer.	N	6	2	1	0	6	15	3.1
	%	40.0	13.3	6.7	0.0	40.0	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Clean and sharpen hand tools.	N	6	4	3	1	1	15	3.9
	%	40.0	26.7	20.0	6.7	6.7	100	
Light maintenance of business vehicle or tractor: oil level, tire pressure, battery & radiator water levels.	N	4	2	3	2	4	15	3.0
	%	26.7	13.3	20.0	13.3	26.7	100	
Minor tune-up of business vehicle or tractor by replacement of spark plugs and ignition points.	N	0	0	5	2	8	15	1.8
	%	0.0	0.0	33.3	13.3	53.3	100	
Change oil and grease business vehicle or tractor.	N	1	2	5	2	5	15	2.5
	%	6.7	13.3	33.3	13.3	33.3	100	
Repair frames, benches and other greenhouse structures.	N	1	5	5	2	2	15	3.1
	%	6.7	33.3	33.3	13.3	13.3	100	
Electrical repair of light switches & extension cords.	N	1	2	4	3	5	15	2.4
	%	6.7	13.3	26.7	20.0	33.3	100	
Paint frames and greenhouse structures.	N	1	0	4	4	6	15	2.1
	%	6.7	0.0	26.7	26.7	40.0	100	
Plumbing repair by replacement of worn gasket or valves in the watering system.	N	0	1	5	5	4	15	2.2
	%	0.0	6.7	33.3	33.3	26.7	100	
Clean and oil electric motors.	N	0	1	3	6	5	15	2.0
	%	0.0	6.7	20.0	40.0	33.3	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Inventory								
Keep current inventory of plants and supplies for sale.	N	0	3	2	1	9	15	1.9
	%	0.0	20.0	13.3	6.7	60.0	100	
Check received merchandise against invoice listings.	N	1	5	3	0	6	15	2.7
	%	6.7	33.3	20.0	0.0	40.0	100	
Check invoices for math errors.	N	1	1	1	0	12	15	1.6
	%	6.7	6.7	6.7	0.0	80.0	100	
Take annual inventory for tax purposes.	N	0	0	0	6	9	15	1.4
	%	0.0	0.0	0.0	40.0	60.0	100	
Store received materials and supplies.	N	4	2	8	0	1	15	3.5
	%	26.7	13.3	53.3	0.0	6.7	100	
Arrange for transportation of plant materials and supplies purchased.	N	4	1	0	1	9	15	3.3
	%	26.7	6.7	0.0	6.7	60.0	100	
Order seed, fertilizer, chemicals, and/or plant materials.	N	0	1	3	3	8	15	1.8
	%	0.0	6.7	20.0	20.0	53.3	100	
Keep current inventory of repair parts, fertilizer, seed, and soil mix supplies.	N	2	0	2	2	9	15	1.9
	%	13.3	0.0	13.3	13.3	60.0	100	
Maintenance								
Keep work, storage, and delivery areas neat and clean.	N	10	5	0	0	0	15	4.7
	%	66.7	33.3	0.0	0.0	0.0	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Order repair parts for vehicles and/or other equipment.	N	1	1	2	3	8	15	1.9
	%	6.7	6.7	13.3	20.0	53.3	100	
Glaze windows.	N	0	1	3	6	5	15	2.0
	%	0.0	6.7	20.0	40.0	33.3	100	
Maintain and repair small gas engines.	N	1	0	2	3	9	15	1.7
	%	6.7	0.0	13.3	20.0	60.0	100	
Clean and repair dusters and sprayers.	N	0	0	5	6	4	15	2.1
	%	0.0	0.0	33.3	40.0	26.7	100	
Maintain and repair power tillers and cultivators.	N	0	0	2	5	8	15	1.6
	%	0.0	0.0	13.3	33.3	53.3	100	
Service heaters and boilers.	N	1	0	3	6	5	15	2.1
	%	6.7	0.0	20.0	40.0	33.3	100	
Management								
Report and pay federal, state and local taxes.	N	0	0	0	1	14	15	1.1
	%	0.0	0.0	0.0	6.7	93.3	100	
Understand and comply with business laws.	N	0	0	1	1	13	15	1.2
	%	0.0	0.0	6.7	6.7	86.7	100	
Administer social security and other employee benefit programs.	N	0	0	0	1	14	15	1.1
	%	0.0	0.0	0.0	6.7	93.3	100	
Identify labor needs.	N	1	0	1	0	13	15	1.4
	%	6.7	0.0	6.7	0.0	86.7	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Recruit employees.	N	0	0	0	2	13	15	1.1
	%	0.0	0.0	0.0	13.3	86.7	100	
Interview and select employees.	N	0	0	1	2	12	15	1.3
	%	0.0	0.0	6.7	13.3	80.0	100	
Designate employee work assignments.	N	1	4	0	1	9	15	2.1
	%	6.7	26.7	0.0	6.7	60.0	100	
Supervise employees.	N	2	3	0	1	9	15	2.2
	%	13.3	20.0	0.0	6.7	60.0	100	
Train new employees.	N	1	3	2	2	7	15	2.3
	%	6.7	20.0	13.3	13.3	46.7	100	
Evaluate employee performance.	N	2	1	1	1	10	15	1.9
	%	13.3	6.7	6.7	6.7	66.7	100	
Perform personnel actions such as promoting or firing.	N	0	0	0	1	14	15	1.1
	%	0.0	0.0	0.0	6.7	93.3	100	
Establish employee wages, hours, and working conditions.	N	0	0	1	0	14	15	1.1
	%	0.0	0.0	6.7	0.0	93.3	100	
Determine business credit needs.	N	0	0	1	0	14	15	1.1
	%	0.0	0.0	6.7	0.0	93.3	100	
Locate sources of, and secure credit.	N	0	0	1	0	14	15	1.1
	%	0.0	0.0	6.7	0.0	93.3	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Determine need for, and purchase comprehensive business insurance.	N	0	0	0	1	14	15	1.1
	%	0.0	0.0	0.0	6.7	93.3	100	
Select and purchase plants, seeds, fertilizer and equipment.	N	0	1	1	4	9	15	1.6
	%	0.0	6.7	6.7	26.7	60.0	100	
Determine kinds and amounts of flowers and other plants to stock.	N	0	0	5	2	8	15	1.8
	%	0.0	0.0	33.3	13.3	53.3	100	
Identify and select producers and suppliers of flowers, plants, and materials.	N	0	1	2	2	10	15	1.6
	%	0.0	6.7	13.3	13.3	66.7	100	
Establish and enforce safety regulations.	N	2	1	3	0	9	15	2.1
	%	13.3	6.7	20.0	0.0	60.0	100	
Allocate monies in preparing working budget.	N	0	1	0	0	14	15	1.2
	%	0.0	6.7	0.0	0.0	93.3	100	
Analyze the business enterprises on cost and return basis.	N	0	1	0	0	14	15	1.2
	%	0.0	6.7	0.0	0.0	93.3	100	
Participate in horticulture trade organizations.	N	0	1	0	1	13	15	1.3
	%	0.0	6.7	0.0	6.7	86.7	100	
Plan business advertising.	N	0	1	0	0	14	15	1.2
	%	0.0	6.7	0.0	0.0	93.3	100	
Negotiate sales contracts.	N	0	2	0	1	12	15	1.5
	%	0.0	13.3	0.0	6.7	80.0	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Plan varieties to be planted according to demand and availability of seed, bulbs, or acion stock.	N	1	2	1	3	8	15	2.0
	%	6.7	13.3	6.7	20.0	53.3	100	
Develop relationships with buyers to get new markets and secure sales agreements.	N	1	0	0	2	12	15	1.4
	%	6.7	0.0	0.0	13.3	80.0	100	
Arrange with commercial seed houses for supplies.	N	0	0	1	2	12	15	1.3
	%	0.0	0.0	6.7	13.3	80.0	100	

Table 15

Competencies Most Frequently Performed

by

All Greenhouse Production Employees

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Write up customer orders.	N	27	4	4	0	3	38	4.4
	%	71.1	10.5	10.5	0.0	7.9	100	
Describe to consumers the purposes and qualities of merchandise for sale.	N	27	5	1	2	3	38	4.3
	%	71.1	13.2	2.6	5.3	7.9	100	
Identify customer needs and wants.	N	27	5	1	1	4	38	4.3
	%	71.1	13.2	2.6	2.6	10.5	100	
Take orders for sales by telephone.	N	28	2	3	0	5	38	4.3
	%	73.7	5.3	7.9	0.0	13.2	100	
Keep work, storage, and delivery areas neat and clean.	N	23	10	0	0	5	38	4.2
	%	60.5	26.3	0.0	0.0	13.2	100	
Use effective interpersonal relationships in dealing with customers.	N	24	5	3	0	6	38	4.1
	%	63.2	13.2	7.9	0.0	15.8	100	
Advise customers on environmental control and shelf life of plants.	N	24	6	1	2	5	38	4.1
	%	63.2	15.8	2.6	5.3	13.2	100	
Make cost estimates on customer orders.	N	21	7	1	1	8	38	3.8
	%	55.3	18.4	2.6	2.6	21.1	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Identify horticultural plants.	N	19	7	4	1	7	38	3.6
	%	50.0	18.4	10.5	2.6	18.4	100	
Remove dead and diseased blooms and plant parts.	N	17	8	1	1	11	38	3.5
	%	44.7	21.1	2.6	2.6	28.9	100	
Store received materials and supplies.	N	13	6	12	0	7	38	3.5
	%	34.2	15.8	31.6	0.0	18.4	100	
Check received merchandise against invoice listings.	N	12	10	7	0	9	38	3.4
	%	31.6	26.3	18.4	0.0	23.7	100	
Demonstrate arrangement features of products.	N	18	3	2	6	9	38	3.4
	%	47.4	7.9	5.3	15.8	23.7	100	
Place cut flowers in environmental storage.	N	17	5	2	1	13	38	3.3
	%	44.7	13.2	5.3	2.6	34.2	100	
Bunch, pack, or wrap flowers and other plants.	N	18	4	2	0	14	38	3.3
	%	47.4	10.5	5.3	0.0	36.8	100	
Pack care instructions with plants.	N	17	2	4	0	15	38	3.2
	%	44.7	5.3	10.5	0.0	39.5	100	
Identify and remove diseased plants.	N	9	11	5	1	12	38	3.1
	%	23.7	28.9	13.2	2.6	31.6	100	
Cut flowers and plants.	N	11	9	2	3	13	38	3.1
	%	28.9	23.7	5.3	7.9	34.2	100	
Supervise employees.	N	16	4	1	2	15	38	3.1
	%	42.1	10.5	2.6	5.3	39.5	100	

Table 16

Frequency of Performance of Competencies

by

Landscape Service Management and Sales Employees

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Sales								
Describe to customers the purposes and qualities of plans, flowers, and other plants for sale.	N	11	1	3	0	5	20	3.7
	%	55.0	5.0	15.0	0.0	25.0	100	
Identify customer needs and wants.	N	13	2	4	0	1	20	4.3
	%	65.0	10.0	20.0	0.0	5.0	100	
Take orders for sales or service by telephone.	N	11	2	1	1	5	20	3.7
	%	55.0	10.0	5.0	5.0	25.0	100	
Follow-up landscape projects to determine customer satisfaction.	N	6	5	2	1	6	20	3.2
	%	30.0	25.0	10.0	5.0	30.0	100	
Make cost estimates on customer orders.	N	7	4	5	0	4	20	3.5
	%	35.0	20.0	25.0	0.0	20.0	100	
Identify horticultural plants.	N	8	6	2	1	3	20	3.8
	%	40.0	30.0	10.0	5.0	15.0	100	
Solicit sales by telephone.	N	3	3	3	1	10	20	2.4
	%	15.0	15.0	15.0	5.0	50.0	100	
Use effective interpersonal relationships in dealing with customers.	N	11	3	4	0	2	20	4.0
	%	55.0	15.0	20.0	0.0	10.0	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Prepare advertising materials.	N	0	3	4	0	13	20	1.8
	%	0.0	15.0	20.0	0.0	65.0	100	
Use supplier advertising materials.	N	1	3	4	0	12	20	2.0
	%	5.0	15.0	20.0	0.0	60.0	100	
Use various types of advertising such as mail, radio, and newspaper ads.	N	0	4	2	0	14	20	1.8
	%	0.0	20.0	10.0	0.0	70.0	100	
Write up customer orders.	N	8	2	2	0	8	20	3.1
	%	40.0	10.0	10.0	0.0	40.0	100	
Interpret plant and flower care instructions to customers.	N	8	3	6	0	3	20	3.7
	%	40.0	15.0	30.0	0.0	15.0	100	
Advise customers on plant pest and disease control.	N	5	5	6	0	4	20	3.3
	%	25.0	25.0	30.0	0.0	20.0	100	
Speak effectively to small groups.	N	1	0	4	6	9	20	1.9
	%	5.0	0.0	20.0	30.0	45.0	100	
Resolve customer complaints to meet company guarantee.	N	4	3	4	3	6	20	2.8
	%	20.0	15.0	20.0	15.0	30.0	100	
Records								
Keep records of receipts and expenses.	N	6	6	1	1	6	20	3.3
	%	30.0	30.0	5.0	5.0	30.0	100	
Make out and mail bills to collect accounts due.	N	5	2	3	0	10	20	2.6
	%	25.0	10.0	15.0	0.0	50.0	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Check credit references of customers.	N	2	2	1	2	13	20	1.9
	%	10.0	10.0	5.0	10.0	65.0	100	
Perform filing tasks.	N	9	1	3	1	6	20	3.3
	%	45.0	5.0	15.0	5.0	30.0	100	
Perform typing and mailing tasks.	N	2	1	6	0	11	20	2.2
	%	10.0	5.0	30.0	0.0	55.0	100	
Keep employee work records.	N	5	2	3	0	10	20	2.6
	%	25.0	10.0	15.0	0.0	50.0	100	
Prepare employee payroll.	N	1	1	1	1	16	20	1.5
	%	5.0	5.0	5.0	5.0	80.0	100	
Pay accounts payable.	N	3	4	2	1	10	20	2.5
	%	15.0	20.0	10.0	5.0	50.0	100	
Assist in records audit.	N	0	1	4	3	12	20	1.7
	%	0.0	5.0	20.0	15.0	60.0	100	
Prepare income tax and other government reports.	N	0	0	2	1	17	20	1.3
	%	0.0	0.0	10.0	5.0	85.0	100	
Keep annual depreciation schedule.	N	0	0	1	2	17	20	1.2
	%	0.0	0.0	5.0	10.0	85.0	100	
Keep customer credit records.	N	4	2	1	0	13	20	2.2
	%	20.0	10.0	5.0	0.0	65.0	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Use adding machine and/or other tabulation devices in balancing accounts.	N	5	5	2	1	7	20	3.0
	%	25.0	25.0	10.0	5.0	35.0	100	
Inventory								
Keep current inventory of plants and supplies for sale.	N	2	4	2	4	8	20	2.4
	%	10.0	20.0	10.0	20.0	40.0	100	
Check invoices for math errors.	N	2	3	3	0	12	20	2.2
	%	10.0	15.0	15.0	0.0	60.0	100	
Take annual inventory for tax purposes.	N	0	0	1	5	14	20	1.3
	%	0.0	0.0	5.0	25.0	70.0	100	
Store received plants and supplies.	N	7	2	3	0	8	20	3.0
	%	35.0	10.0	15.0	0.0	40.0	100	
Arrange for transportation of materials purchased.	N	3	5	4	0	8	20	2.8
	%	15.0	25.0	20.0	0.0	40.0	100	
Order replacement and/or new plants, equipment, and supplies.	N	3	5	5	1	6	20	2.9
	%	15.0	25.0	25.0	5.0	30.0	100	
Keep current inventory of repair parts, fertilizer, seed, chemicals, oil, and gas.	N	1	6	3	1	9	20	2.5
	%	5.0	30.0	15.0	5.0	45.0	100	
Maintenance								
Keep work, storage, and delivery areas neat and clean.	N	3	5	2	0	10	20	2.5
	%	15.0	25.0	10.0	0.0	50.0	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Clean and sharpen hand tools.	N	1	3	2	0	14	20	1.8
	%	5.0	15.0	10.0	0.0	70.0	100	
Perform light maintenance of business vehicle or tractor - oil level, tire pressure, battery, and radiator water levels.	N	1	3	1	1	14	20	1.8
	%	5.0	15.0	5.0	5.0	70.0	100	
Perform minor tune-up of business vehicle or tractor by replacement of spark plugs and ignition points.	N	0	0	1	1	18	20	1.2
	%	0.0	0.0	5.0	5.0	90.0	100	
Change oil and grease business vehicle or tractor.	N	0	0	2	1	17	20	1.3
	%	0.0	0.0	10.0	5.0	85.0	100	
Repair storage buildings and shop.	N	0	0	1	3	16	20	1.3
	%	0.0	0.0	5.0	15.0	80.0	100	
Electrical repair of light switches and extension cords.	N	0	0	0	4	16	20	1.2
	%	0.0	0.0	0.0	20.0	80.0	100	
Paint storage structures.	N	0	0	0	2	18	20	1.1
	%	0.0	0.0	0.0	10.0	90.0	100	
Plumbing repair by replacement of worn gaskets or valves.	N	0	0	3	1	16	20	1.3
	%	0.0	0.0	15.0	5.0	80.0	100	
Clean and oil electric motors.	N	0	0	1	1	18	20	1.2
	%	0.0	0.0	5.0	5.0	90.0	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Order repair parts for vehicles and/or other equipment.	N	0	0	2	2	16	20	1.3
	%	0.0	0.0	10.0	10.0	80.0	100	
Clean and repair dusters and sprayers.	N	0	1	4	0	15	20	1.5
	%	0.0	5.0	20.0	0.0	75.0	100	
Service and repair small gas engines (e.g. lawn mowers).	N	0	1	3	0	16	20	1.5
	%	0.0	5.0	15.0	0.0	80.0	100	
Maintain and repair tillers, cultivators, hedge shears, etc.	N	0	1	3	1	15	20	1.5
	%	0.0	5.0	15.0	5.0	75.0	100	
Perform major equipment overhaul.	N	0	0	0	1	19	20	1.0
	%	0.0	0.0	0.0	5.0	95.0	100	
Paint equipment.	N	0	0	1	3	16	20	1.3
	%	0.0	0.0	5.0	15.0	80.0	100	
Planning a Landscape								
Consult with client to find out his needs and wishes.	N	11	4	4	0	1	20	4.2
	%	55.0	20.0	20.0	0.0	5.0	100	
Survey the landscape area.	N	6	3	3	2	6	20	3.0
	%	30.0	15.0	15.0	10.0	30.0	100	
Locate existing water and sewer lines in landscape area.	N	0	8	5	2	5	20	2.8
	%	0.0	40.0	25.0	10.0	25.0	100	
Draw landscape prints and plans.	N	3	6	3	1	7	20	2.8
	%	15.0	30.0	15.0	5.0	35.0	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Use design principles and techniques that fit the job.	N	9	4	1	2	4	20	3.6
	%	45.0	20.0	5.0	10.0	20.0	100	
Determine the time of year to do the job.	N	6	7	2	0	5	20	3.5
	%	30.0	35.0	10.0	0.0	25.0	100	
Select trees and plants.	N	9	1	2	4	4	20	3.3
	%	45.0	5.0	10.0	20.0	20.0	100	
List the plant materials to be used.	N	6	3	4	0	7	20	3.0
	%	30.0	15.0	20.0	0.0	35.0	100	
Estimate labor in terms of number of men and hours.	N	9	2	3	0	6	20	3.4
	%	45.0	10.0	15.0	0.0	30.0	100	
Prepare cost estimate of plan.	N	6	2	8	0	4	20	3.3
	%	30.0	10.0	40.0	0.0	20.0	100	
Interpret landscape specifications and designs prepared by landscape architects.	N	1	9	4	0	6	20	3.0
	%	4.0	45.0	20.0	0.0	30.0	100	
Operate business vehicle with a standard transmission.	N	8	6	0	0	6	20	3.5
	%	40.0	30.0	0.0	0.0	30.0	100	
Prepare the Landscape								
Determine the time to plant various species.	N	4	5	4	1	6	20	3.0
	%	20.0	10.0	20.0	5.0	30.0	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Dig drainage ditches.	N	0	0	1	3	16	20	1.3
	%	0.0	0.0	5.0	15.0	80.0	100	
Clear brush and unwanted plants.	N	0	1	6	0	13	20	1.8
	%	0.0	5.0	30.0	0.0	65.0	100	
Fell and remove trees.	N	0	1	4	1	14	20	1.6
	%	0.0	5.0	20.0	5.0	70.0	100	
Take soil samples.	N	0	0	3	1	16	20	1.3
	%	0.0	0.0	15.0	5.0	80.0	100	
Fertilize based on soil test results.	N	0	2	1	1	16	20	1.5
	%	0.0	10.0	5.0	5.0	80.0	100	
Spread and level top soil.	N	0	2	3	1	14	20	1.7
	%	0.0	10.0	15.0	5.0	70.0	100	
Prepare flower and shrub beds for planting.	N	0	2	4	1	13	20	1.8
	%	0.0	10.0	20.0	5.0	65.0	100	
Dig holes for tree setting.	N	1	2	3	0	14	20	1.8
	%	5.0	10.0	15.0	0.0	70.0	100	
Install irrigation systems.	N	0	0	0	1	19	20	1.0
	%	0.0	0.0	0.0	5.0	95.0	100	
Add peat moss to soils.	N	0	2	2	2	14	20	1.6
	%	0.0	10.0	10.0	10.0	70.0	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Planting a Landscape								
Control weeds and soil insects with chemicals.	N	0	3	2	0	15	20	1.7
	%	0.0	15.0	10.0	0.0	75.0	100	
Till soil for lawn seedbed.	N	0	0	3	1	16	20	1.3
	%	0.0	0.0	15.0	5.0	80.0	100	
Seed a lawn.	N	0	1	3	0	16	20	1.5
	%	0.0	5.0	15.0	0.0	80.0	100	
Add mulch to protect new seedings.	N	0	3	3	0	14	20	1.8
	%	0.0	15.0	15.0	0.0	70.0	100	
Plant flowers and shrubs.	N	1	4	2	0	13	20	2.0
	%	5.0	20.0	10.0	0.0	65.0	100	
Plant trees.	N	1	4	1	1	13	20	2.0
	%	5.0	20.0	5.0	5.0	65.0	100	
Support woody plants by guying, staking, or cabling.	N	1	3	4	1	11	20	2.1
	%	5.0	15.0	20.0	5.0	55.0	100	
Set stones.	N	0	2	4	0	14	20	1.7
	%	0.0	10.0	20.0	0.0	70.0	100	
Install drain tile.	N	0	0	3	0	17	20	1.3
	%	0.0	0.0	15.0	0.0	85.0	100	
Construct walls, walks, and outbuildings.	N	0	0	5	1	14	20	1.5
	%	0.0	0.0	25.0	5.0	70.0	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Construct paved roads and drives.	N	0	0	0	1	19	20	1.0
	%	0.0	0.0	0.0	5.0	95.0	100	
Place sod.	N	0	2	2	1	15	20	1.5
	%	0.0	10.0	10.0	5.0	75.0	100	
Water new plantings including sod.	N	3	3	1	1	12	20	2.2
	%	15.0	15.0	5.0	5.0	60.0	100	
Dispose of paper and refuse.	N	3	4	1	0	12	20	2.3
	%	15.0	20.0	5.0	0.0	60.0	100	
Final clean-up and check of landscape job.	N	6	3	1	0	10	20	2.8
	%	30.0	15.0	5.0	0.0	50.0	100	
Landscape Maintenance								
Clean grounds of leaves and litters.	N	1	3	1	1	14	20	1.8
	%	5.0	15.0	5.0	5.0	70.0	100	
Identify horticultural plant disease and insect infestations.	N	1	7	3	0	9	20	2.5
	%	5.0	35.0	15.0	0.0	45.0	100	
Spray chemicals to eliminate weeds, insects, and disease.	N	1	2	2	0	15	20	1.7
	%	5.0	10.0	10.0	0.0	75.0	100	
Repair gates, walks, and walls of the grounds.	N	0	1	1	2	16	20	1.3
	%	0.0	5.0	5.0	10.0	80.0	100	
Paint fences and outbuildings.	N	0	0	0	2	18	20	1.1
	%	0.0	0.0	0.0	10.0	90.0	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Clean drainage ditches and culverts.	N	0	0	0	0	20	20	1.0
	%	0.0	0.0	0.0	0.0	100	100	
Prune and remove dead or unwanted tree branches.	N	1	6	1	0	12	20	2.2
	%	5.0	30.0	5.0	0.0	60.0	100	
Scrape tree wounds.	N	1	1	4	0	14	20	1.8
	%	5.0	5.0	20.0	0.0	70.0	100	
Apply protective substance to tree wounds or cut surfaces.	N	1	3	4	1	11	20	2.1
	%	5.0	15.0	20.0	5.0	55.0	100	
Prepare lawn for reseeding.	N	0	1	3	1	15	20	1.5
	%	0.0	5.0	15.0	5.0	75.0	100	
Identify and remove poisonous plants.	N	0	2	0	4	14	20	1.5
	%	0.0	10.0	0.0	20.0	70.0	100	
Treat plant wounds and disease infestations.	N	0	2	4	0	14	20	1.7
	%	0.0	10.0	20.0	0.0	70.0	100	
Repair worn spots in lawn with sod or reseeding.	N	0	3	1	0	16	20	1.5
	%	0.0	15.0	5.0	0.0	80.0	100	
Plant annual flowers and set bulbs.	N	0	0	2	3	15	20	1.3
	%	0.0	0.0	10.0	15.0	75.0	100	
Take soil samples and send for analysis.	N	0	0	2	1	17	20	1.3
	%	0.0	0.0	10.0	5.0	85.0	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Apply lime and fertilizer according to soil test.	N	0	1	1	1	17	20	1.3
	%	0.0	5.0	5.0	5.0	85.0	100	
Water flower beds and lawns.	N	3	1	1	0	15	20	1.8
	%	15.0	5.0	5.0	0.0	75.0	100	
Prune and trim trees and shrubs.	N	2	4	4	1	9	20	2.5
	%	10.0	20.0	20.0	5.0	45.0	100	
Mow and trim lawns.	N	1	1	0	1	17	20	1.4
	%	5.0	5.0	0.0	5.0	85.0	100	
Remove dead or unwanted trees and shrubs.	N	1	2	3	0	14	20	1.8
	%	5.0	10.0	15.0	0.0	70.0	100	
Shovel snow.	N	0	0	2	4	14	20	1.4
	%	0.0	0.0	10.0	20.0	70.0	100	
Cultivate flower beds.	N	1	1	2	0	16	20	1.5
	%	5.0	5.0	10.0	0.0	80.0	100	
Repair driveways.	N	0	1	1	0	18	20	1.3
	%	0.0	5.0	5.0	0.0	90.0	100	
Transplant trees and/or shrubs.	N	1	3	1	1	14	20	1.8
	%	5.0	15.0	5.0	5.0	70.0	100	
Select and use mulches.	N	1	3	2	0	14	20	1.8
	%	5.0	15.0	10.0	0.0	70.0	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Plow snow.	N	0	0	2	2	16	20	1.3
	%	0.0	0.0	10.0	10.0	80.0	100	
Reseed a lawn.	N	1	1	2	1	15	20	1.6
	%	5.0	5.0	10.0	5.0	75.0	100	
Management								
Report and pay federal, state, and local taxes.	N	0	2	6	0	12	20	1.9
	%	0.0	10.0	30.0	0.0	60.0	100	
Understand and comply with business laws.	N	9	0	3	1	7	20	3.2
	%	45.0	0.0	15.0	5.0	35.0	100	
Administer social security and other employee benefit programs.	N	2	1	5	0	12	20	2.0
	%	10.0	5.0	25.0	0.0	60.0	100	
Identify labor needs.	N	4	6	4	1	5	20	3.2
	%	20.0	30.0	20.0	5.0	25.0	100	
Recruit employees.	N	1	2	3	7	7	20	2.2
	%	5.0	10.0	15.0	35.0	35.0	100	
Interview and select employees.	N	2	0	6	7	5	20	2.3
	%	10.0	0.0	30.0	35.0	25.0	100	
Designate employee work assignments.	N	12	4	1	0	3	20	4.1
	%	60.0	20.0	5.0	0.0	15.0	100	
Supervise employees.	N	13	2	2	0	3	20	4.1
	%	65.0	10.0	10.0	0.0	15.0	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Train new employees.	N	4	1	6	5	4	20	2.8
	%	20.0	5.0	30.0	25.0	20.0	100	
Evaluate employee performance.	N	3	2	5	5	5	20	2.7
	%	15.0	10.0	25.0	25.0	25.0	100	
Perform personnel actions such as promoting or firing.	N	3	0	3	4	10	20	2.1
	%	15.0	0.0	15.0	20.0	50.0	100	
Establish employee wages, hours, and working conditions.	N	2	1	2	6	9	20	2.0
	%	10.0	5.0	10.0	30.0	45.0	100	
Determine business credit needs.	N	3	0	1	3	13	20	1.8
	%	15.0	0.0	5.0	15.0	65.0	100	
Locate sources of, and secure credit.	N	3	0	1	2	14	20	1.8
	%	15.0	0.0	5.0	10.0	70.0	100	
Determine need for, and purchase comprehensive business insurance.	N	3	0	0	3	14	20	1.8
	%	15.0	0.0	0.0	15.0	70.0	100	
Select and purchase equipment and expendables not for sale.	N	6	1	3	3	7	20	2.8
	%	30.0	5.0	15.0	15.0	35.0	100	
Determine kinds and amounts of flowers and plants to stock.	N	2	0	1	7	10	20	1.8
	%	10.0	0.0	5.0	35.0	50.0	100	
Identify and select producers and suppliers of flowers, plants, and materials.	N	2	0	1	8	9	20	1.9
	%	10.0	0.0	5.0	40.0	45.0	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Establish and enforce safety regulations.	N	7	0	3	2	8	20	2.8
	%	35.0	0.0	15.0	10.0	40.0	100	
Allocate monies in preparing working budget.	N	3	0	3	2	12	20	2.0
	%	15.0	0.0	15.0	10.0	60.0	100	
Analyze the business enterprises on cost and return basis.	N	1	0	5	2	12	20	1.8
	%	5.0	0.0	25.0	10.0	60.0	100	
Participate in horticulture trade organizations.	N	1	0	0	7	12	20	1.5
	%	5.0	0.0	0.0	35.0	60.0	100	
Plan business advertising.	N	2	0	2	1	15	20	1.7
	%	10.0	0.0	10.0	5.0	75.0	100	
Negotiate sales contracts.	N	2	1	3	1	13	20	1.9
	%	10.0	5.0	15.0	5.0	65.0	100	
Analyze jobs and contracts on cost basis.	N	3	2	5	5	5	20	2.7
	%	15.0	10.0	25.0	25.0	25.0	100	
Determine which jobs to contract.	N	3	1	4	4	8	20	2.3
	%	15.0	5.0	20.0	20.0	40.0	100	

Table 17

Frequency of Performance of Competencies
by
Landscape Service Labor Employees

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Sales								
Describe to customers the purposes and qualities of plans, flowers, and other plants for sale.	N	0	1	0	0	14	15	1.2
	%	0.0	6.7	0.0	0.0	93.3	100	
Identify customer needs and wants.	N	0	0	1	0	14	15	1.1
	%	0.0	0.0	6.7	0.0	93.3	100	
Take orders for sales or service by telephone.	N	0	0	0	0	15	15	1.0
	%	0.0	0.0	0.0	0.0	100	100	
Follow-up landscape projects to determine customer satisfaction.	N	0	0	0	0	15	15	1.0
	%	0.0	0.0	0.0	0.0	100	100	
Make cost estimates on customer orders.	N	0	0	1	0	14	15	1.1
	%	0.0	0.0	6.7	0.0	93.3	100	
Identify horticultural plants.	N	1	0	0	1	13	15	1.3
	%	6.7	0.0	0.0	6.7	86.7	100	
Solicit sales by telephone.	N	0	1	0	0	14	15	1.2
	%	0.0	6.7	0.0	0.0	93.3	100	
Use effective interpersonal relationships in dealing with customers.	N	0	0	0	0	15	15	1.0
	%	0.0	0.0	0.0	0.0	100	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Prepare advertising materials.	N	0	0	0	0	15	15	1.0
	%	0.0	0.0	0.0	0.0	100	100	
Use supplier advertising materials.	N	0	0	0	0	15	15	1.0
	%	0.0	0.0	0.0	0.0	100	100	
Use various types of advertising such as mail, radio, and newspaper ads.	N	0	0	0	0	15	15	1.0
	%	0.0	0.0	0.0	0.0	100	100	
Write up customer orders.	N	0	0	1	0	14	15	1.1
	%	0.0	0.0	6.7	0.0	93.3	100	
Interpret plant and flower care instructions to customers.	N	0	0	0	0	15	15	1.0
	%	0.0	0.0	0.0	0.0	100	100	
Advise customers on plant pest and disease control.	N	0	1	0	0	14	15	1.2
	%	0.0	6.7	0.0	0.0	93.3	100	
Speak effectively to small groups.	N	0	1	0	0	14	15	1.2
	%	0.0	6.7	0.0	0.0	93.3	100	
Resolve customer complaints to meet company guarantee.	N	0	0	0	0	15	15	1.0
	%	0.0	0.0	0.0	0.0	100	100	
Records								
Keep records of receipts and expenses.	N	1	0	1	0	13	15	1.4
	%	6.7	0.0	6.7	0.0	86.7	100	
Make out and mail bills to collect accounts due.	N	0	0	0	0	15	15	1.0
	%	0.0	0.0	0.0	0.0	100	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Check credit references of customers.	N	0	0	0	0	15	15	1.0
	%	0.0	0.0	0.0	0.0	100	100	
Perform filing tasks.	N	1	0	1	0	13	15	1.4
	%	6.7	0.0	6.7	0.0	86.7	100	
Perform typing and mailing tasks.	N	0	0	0	0	15	15	1.0
	%	0.0	0.0	0.0	0.0	100	100	
Keep employee work records.	N	0	0	0	0	15	15	1.0
	%	0.0	0.0	0.0	0.0	100	100	
Prepare employee payroll.	N	0	0	0	0	15	15	1.0
	%	0.0	0.0	0.0	0.0	100	100	
Pay accounts payable.	N	0	0	0	0	15	15	1.0
	%	0.0	0.0	0.0	0.0	100	100	
Assist in records audit.	N	0	0	0	1	14	15	1.1
	%	0.0	0.0	0.0	6.7	93.3	100	
Prepare income tax and other government reports.	N	0	0	0	0	15	15	1.0
	%	0.0	0.0	0.0	0.0	100	100	
Keep annual depreciation schedule.	N	0	0	0	1	14	15	1.1
	%	0.0	0.0	0.0	6.7	93.3	100	
Keep customer credit records.	N	0	0	0	0	15	15	1.0
	%	0.0	0.0	0.0	0.0	100	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Use adding machine and/or other tabulation devices in balancing accounts.	N	0	0	0	0	15	15	1.0
	%	0.0	0.0	0.0	0.0	100	100	
Inventory								
Keep current inventory of plants and supplies for sale.	N	1	0	1	0	13	15	1.4
	%	6.7	0.0	6.7	0.0	86.7	100	
Check invoices for math errors.	N	1	0	2	0	12	15	1.5
	%	6.7	0.0	13.3	0.0	80.0	100	
Take annual inventory for tax purposes.	N	0	0	0	0	15	15	1.0
	%	0.0	0.0	0.0	0.0	100	100	
Store received plants and supplies.	N	1	1	1	1	11	15	1.7
	%	6.7	6.7	6.7	6.7	73.3	100	
Arrange for transportation of materials purchased.	N	1	0	2	2	10	15	1.7
	%	6.7	0.0	13.3	13.3	66.7	100	
Order replacement and/or new plants, equipment, and supplies.	N	1	0	3	0	11	15	1.7
	%	6.7	0.0	20.0	0.0	73.3	100	
Keep current inventory of repair parts, fertilizer, seed, chemicals, oil, and gas	N	1	1	2	0	11	15	1.7
	%	6.7	6.7	13.3	0.0	73.3	100	
Maintenance								
Keep work, storage, and delivery areas neat and clean	N	5	3	5	0	2	15	3.6
	%	33.3	20.0	33.3	0.0	13.3	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Clean and sharpen hand tools.	N	6	5	0	2	2	15	3.7
	%	40.0	33.3	0.0	13.3	13.3	100	
Perform light maintenance of business vehicle or tractor - oil level, tire pressure, battery, and radiator water levels.	N	4	7	2	1	1	15	3.8
	%	26.7	46.7	13.3	6.7	6.7	100	
Perform minor tune-up of business vehicle or tractor by replacement of spark plugs and ignition points.	N	3	1	3	3	5	15	2.6
	%	20.0	6.7	20.0	20.0	33.3	100	
Change oil and grease business vehicle or tractor.	N	2	4	5	1	3	15	3.1
	%	13.3	26.7	33.3	6.7	20.0	100	
Repair storage buildings and shop.	N	0	0	6	3	6	15	2.0
	%	0.0	0.0	40.0	20.0	40.0	100	
Electrical repair of light switches and extension cords.	N	1	1	1	1	11	15	1.7
	%	6.7	6.7	6.7	6.7	73.3	100	
Paint storage structures.	N	0	0	3	4	8	15	1.7
	%	0.0	0.0	20.0	26.7	53.3	100	
Plumbing repair by replacement of worn gaskets or valves.	N	0	0	0	2	13	15	1.1
	%	0.0	0.0	0.0	13.3	86.7	100	
Clean and oil electric motors.	N	0	0	0	7	8	15	1.5
	%	0.0	0.0	0.0	46.7	53.3	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Order repair parts for vehicles and/or other equipment.	N	1	1	4	3	6	15	2.2
	%	6.7	6.7	26.7	20.0	40.0	100	
Clean and repair dusters and sprayers.	N	0	2	4	1	8	15	2.0
	%	0.0	13.3	26.7	6.7	53.3	100	
Service and repair small gas engines (e.g. lawn mowers).	N	1	1	4	3	6	15	2.2
	%	6.7	6.7	26.7	20.0	40.0	100	
Maintain and repair tillers, cultivators, hedge shears, etc.	N	0	0	5	6	4	15	2.1
	%	0.0	0.0	33.3	40.0	26.7	100	
Perform major equipment overhaul.	N	0	0	0	4	11	15	1.3
	%	0.0	0.0	0.0	26.7	73.3	100	
Paint equipment.	N	0	0	1	9	5	15	1.7
	%	0.0	0.0	6.7	60.0	33.3	100	
Planning a Landscape								
Consult with client to find out his needs and wishes.	N	0	2	1	1	11	15	1.6
	%	0.0	13.3	6.7	6.7	73.3	100	
Survey the landscape area.	N	0	2	1	2	10	15	1.7
	%	0.0	13.3	6.7	13.3	66.7	100	
Locate existing water and sewer lines in landscape area.	N	0	1	2	1	11	15	1.5
	%	0.0	6.7	13.3	6.7	73.3	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Draw landscape prints and plans.	N	0	1	0	0	14	15	1.2
	%	0.0	6.7	0.0	0.0	93.3	100	
Use design principles and techniques that fit the job.	N	0	1	3	2	9	15	1.7
	%	0.0	6.7	20.0	13.3	60.0	100	
Determine the time of year to do the job.	N	1	1	2	2	9	15	1.9
	%	6.7	6.7	13.3	13.3	60.0	100	
Selection of trees and plants.	N	0	0	0	2	13	15	1.1
	%	0.0	0.0	0.0	13.3	86.7	100	
List the plant material to be used.	N	0	0	1	1	13	15	1.2
	%	0.0	0.0	6.7	6.7	86.7	100	
Estimate labor in terms of number of men and hours.	N	1	0	2	1	11	15	1.6
	%	6.7	0.0	13.3	6.7	73.3	100	
Prepare cost estimate of plan.	N	1	0	2	1	11	15	1.6
	%	6.7	0.0	13.3	6.7	73.3	100	
Interpret landscape specifications and designs prepared by landscape architects.	N	0	1	1	0	13	15	1.3
	%	0.0	6.7	6.7	0.0	86.7	100	
Operate business vehicle with a standard transmission.	N	5	3	1	0	6	15	3.1
	%	33.3	20.0	6.7	0.0	40.0	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Prepare the Landscape								
Determine the time to plant various species.	N	1	0	3	0	11	15	1.7
	%	6.7	0.0	20.0	0.0	73.3	100	
Dig drainage ditches.	N	0	1	2	3	9	15	1.7
	%	0.0	6.7	13.3	20.0	60.0	100	
Clear brush and unwanted plants.	N	3	2	5	1	4	15	2.9
	%	20.0	13.3	33.3	6.7	26.7	100	
Fell and remove trees.	N	1	4	4	2	4	15	2.7
	%	6.7	26.7	26.7	13.3	26.7	100	
Take soil samples.	N	0	1	0	2	12	15	1.3
	%	0.0	6.7	0.0	13.3	80.0	100	
Fertilize based on soil test results.	N	0	1	2	3	9	15	1.7
	%	0.0	6.7	13.3	20.0	60.0	100	
Spread and level top soil.	N	1	2	4	2	6	15	2.3
	%	6.7	13.3	26.7	13.3	40.0	100	
Prepare flower and shrub beds for planting.	N	0	1	1	3	10	15	1.5
	%	0.0	6.7	6.7	20.0	66.7	100	
Dig holes for tree setting.	N	0	1	6	3	5	15	2.2
	%	0.0	6.7	40.0	20.0	33.3	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Install irrigation systems.	N	1	0	0	2	12	15	1.4
	%	6.7	0.0	0.0	13.3	80.0	100	
Add peat moss to soils.	N	0	1	0	3	11	15	1.4
	%	0.0	6.7	0.0	20.0	73.3	100	
Planting a Landscape								
Control weeds and soil insects with chemicals.	N	0	0	2	4	9	15	1.5
	%	0.0	0.0	13.3	26.7	60.0	100	
Till soil for lawn seedbed.	N	0	1	3	2	9	15	1.7
	%	0.0	6.7	20.0	13.3	60.0	100	
Seed a lawn.	N	0	1	3	4	7	15	1.9
	%	0.0	6.7	20.0	26.7	46.7	100	
Add mulch to protect new seedings.	N	0	0	4	2	9	15	1.7
	%	0.0	0.0	26.7	13.3	60.0	100	
Plant flowers and shrubs.	N	0	1	5	3	6	15	2.1
	%	0.0	6.7	33.3	20.0	40.0	100	
Plant trees.	N	2	0	3	4	6	15	2.2
	%	13.3	0.0	20.0	26.7	40.0	100	
Support woody plants by guying, staking, or cabling.	N	1	1	1	2	10	15	1.7
	%	6.7	6.7	6.7	13.3	66.7	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Set stones.	N	1	0	2	0	12	15	1.5
	%	6.7	0.0	13.3	0.0	80.0	100	
Install drain tile.	N	0	1	2	3	9	15	1.7
	%	0.0	6.7	13.3	20.0	60.0	100	
Construct walls, walks, and outbuildings.	N	0	0	1	3	11	15	1.3
	%	0.0	0.0	6.7	20.0	73.3	100	
Construct paved roads and drives.	N	0	0	4	1	10	15	1.6
	%	0.0	0.0	26.7	6.7	66.7	100	
Place sod.	N	0	0	2	7	6	15	1.7
	%	0.0	0.0	13.3	46.7	40.0	100	
Water new plantings including sod.	N	0	1	5	2	7	15	2.0
	%	0.0	6.7	33.3	13.3	46.7	100	
Dispose of paper and refuse.	N	1	3	1	4	6	15	2.3
	%	6.7	20.0	6.7	26.7	40.0	100	
Final clean-up and check of landscape job.	N	0	2	0	3	10	15	1.6
	%	0.0	13.3	0.0	20.0	66.7	100	
Landscape Maintenance								
Clean grounds of leaves and litter.	N	0	1	3	5	6	15	1.9
	%	0.0	6.7	20.0	33.3	40.0	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Identify horticultural plant disease and insect infestations.	N	1	2	0	2	10	15	1.8
	%	6.7	13.3	0.0	13.3	66.7	100	
Spray chemicals to eliminate weeds, insects, and disease.	N	0	1	2	3	9	15	1.7
	%	0.0	6.7	13.3	20.0	60.0	100	
Repair gates, walks, and walls of the grounds	N	0	2	1	4	8	15	1.8
	%	0.0	13.3	6.7	26.7	53.3	100	
Paint fences and outbuildings.	N	1	0	1	2	11	15	1.5
	%	6.7	0.0	6.7	13.3	73.3	100	
Clean drainage ditches and culverts.	N	1	0	2	4	8	15	1.8
	%	6.7	0.0	13.3	26.7	53.3	100	
Prune and remove dead or unwanted tree branches.	N	3	1	3	1	7	15	2.5
	%	20.0	6.7	20.0	6.7	46.7	100	
Scrape tree wounds.	N	2	1	2	0	10	15	2.0
	%	13.3	6.7	13.3	0.0	66.7	100	
Apply protective substance to tree wounds or cut surfaces.	N	2	1	0	2	10	15	1.9
	%	13.3	6.7	0.0	13.3	66.7	100	
Prepare lawn for reseeding.	N	0	2	2	4	7	15	1.9
	%	0.0	13.3	13.3	26.7	46.7	100	
Identify and remove poisonous plants.	N	1	0	1	4	9	15	1.7
	%	6.7	0.0	6.7	26.7	60.0	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Treat plant wounds and disease infestations.	N	2	0	0	2	11	15	1.7
	%	13.3	0.0	0.0	13.3	73.3	100	
Repair worn spots in lawn with sod or reseeding.	N	0	0	3	5	7	15	1.7
	%	0.0	0.0	20.0	33.3	46.7	100	
Plant annual flowers and set bulbs.	N	0	1	0	3	11	15	1.4
	%	0.0	6.7	0.0	20.0	73.3	100	
Take soil samples and send for analysis.	N	0	1	0	2	12	15	1.3
	%	0.0	6.7	0.0	13.3	80.0	100	
Apply lime and fertilizer according to soil test.	N	1	0	0	3	11	15	1.5
	%	6.7	0.0	0.0	20.0	73.3	100	
Water flower beds and lawns.	N	0	1	3	1	10	15	1.7
	%	0.0	6.7	20.0	6.7	66.7	100	
Prune and trim trees and shrubs.	N	3	2	0	3	7	15	2.4
	%	20.0	13.3	0.0	20.0	46.7	100	
Mow and trim lawns.	N	3	2	2	1	7	15	2.5
	%	20.0	13.3	13.3	6.7	46.7	100	
Remove dead or unwanted trees and shrubs.	N	3	2	1	5	4	15	2.7
	%	20.0	13.3	6.7	33.3	26.7	100	
Shovel snow.	N	1	1	2	6	5	15	2.1
	%	6.7	6.7	13.3	40.0	33.3	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Cultivate flower beds.	N	0	2	2	3	8	15	1.9
	%	0.0	13.3	13.3	20.0	53.3	100	
Repair driveways.	N	0	1	4	2	8	15	1.9
	%	0.0	6.7	26.7	13.3	53.3	100	
Transplant trees and/or shrubs.	N	0	1	2	2	10	15	1.6
	%	0.0	6.7	13.3	13.3	66.7	100	
Select and use mulches.	N	0	2	1	3	9	15	1.7
	%	0.0	13.3	6.7	20.0	60.0	100	
Plow snow.	N	0	0	4	5	6	15	1.9
	%	0.0	0.0	26.7	33.3	40.0	100	
Reseed a lawn.	N	0	1	2	6	6	15	1.9
	%	0.0	6.7	13.3	40.0	40.0	100	
Management								
Report and pay federal, state, and local taxes.	N	1	0	1	2	11	15	1.5
	%	6.7	0.0	6.7	13.3	73.3	100	
Understand and comply with business laws.	N	1	0	1	0	13	15	1.4
	%	6.7	0.0	6.7	0.0	86.7	100	
Administer social security and other employee benefit programs.	N	0	1	0	0	14	15	1.2
	%	0.0	6.7	0.0	0.0	93.3	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Identify labor needs.	N	1	0	1	1	12	15	1.5
	%	6.7	0.0	6.7	6.7	80.0	100	
Recruit employees.	N	0	0	1	0	14	15	1.1
	%	0.0	0.0	6.7	0.0	93.3	100	
Interview and select employees.	N	0	0	2	0	13	15	1.3
	%	0.0	0.0	13.3	0.0	86.7	100	
Designate employee work assignments.	N	3	0	1	0	11	15	1.9
	%	20.0	0.0	6.7	0.0	73.3	100	
Supervise employees.	N	4	0	1	0	10	15	2.2
	%	26.7	0.0	6.7	0.0	66.7	100	
Train new employees.	N	3	0	1	1	10	15	2.0
	%	20.0	0.0	6.7	6.7	66.7	100	
Evaluate employee performance.	N	2	0	0	1	12	15	1.6
	%	13.3	0.0	0.0	6.7	80.0	100	
Perform personnel actions such as promoting or firing.	N	0	1	0	0	14	15	1.2
	%	0.0	6.7	0.0	0.0	93.3	100	
Establish employee wages, hours, and working conditions.	N	0	0	1	0	14	15	1.1
	%	0.0	0.0	6.7	0.0	93.3	100	
Determine business credit needs.	N	0	0	0	0	15	15	1.0
	%	0.0	0.0	0.0	0.0	100	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Locate sources of, and secure credit.	N	0	0	0	0	15	15	1.0
	%	0.0	0.0	0.0	0.0	100	100	
Determine need for, and purchase comprehensive business insurance.	N	0	1	0	0	14	15	1.2
	%	0.0	6.7	0.0	0.0	93.3	100	
Select and purchase equipment and expendables not for sale.	N	0	0	0	2	13	15	1.1
	%	0.0	0.0	0.0	13.3	86.7	100	
Determine kinds and amounts of flowers and plants to stock.	N	0	0	0	0	15	15	1.0
	%	0.0	0.0	0.0	0.0	100	100	
Identify and select producers and suppliers of flowers, plants, and materials.	N	0	0	0	2	13	15	1.1
	%	0.0	0.0	0.0	13.3	86.7	100	
Establish and enforce safety regulations.	N	3	1	1	0	10	15	2.1
	%	20.0	6.7	6.7	0.0	66.7	100	
Allocate monies in preparing working budget.	N	0	0	0	0	15	15	1.0
	%	0.0	0.0	0.0	0.0	100	100	
Analyze the business enterprises on cost and return basis.	N	0	0	0	0	15	15	1.0
	%	0.0	0.0	0.0	0.0	100	100	
Participate in horticulture trade organizations.	N	0	0	0	0	15	15	1.0
	%	0.0	0.0	0.0	0.0	100	100	
Plan business advertising.	N	0	0	0	0	15	15	1.0
	%	0.0	0.0	0.0	0.0	100	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Negotiate sales contracts.	N	0	0	0	0	15	15	1.0
	%	0.0	0.0	0.0	0.0	100	100	
Analyze jobs and contracts on cost basis.	N	1	0	1	0	13	15	1.4
	%	6.7	0.0	6.7	0.0	86.7	100	
Determine which jobs to contract.	N	0	0	0	0	15	15	1.0
	%	0.0	0.0	0.0	0.0	100	100	

Table 18

Competencies Most Frequently Performed

by

All Landscape Service Employees

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Operate business vehicle with a standard transmission.	N	13	9	1	0	12	35	3.3
	%	37.1	25.7	2.9	0.0	34.3	100	
Supervise employees.	N	17	2	3	0	13	35	3.3
	%	48.6	5.7	8.6	0.0	37.1	100	
Designate employee work assignments.	N	15	4	2	0	14	35	3.2
	%	42.9	11.4	5.7	0.0	40.0	100	
Consult with client to find out his needs and wishes.	N	11	6	5	1	12	35	3.1
	%	31.4	17.1	14.3	2.9	34.3	100	
Keep work, storage, and delivery areas neat and clean.	N	8	8	7	0	12	35	3.0
	%	22.9	22.9	20.0	0.0	34.3	100	

Data in Table 19 reveal the frequency of performance of competencies by park and highway management managerial employees. Respondents in this group included persons employed as park managers, assistant managers, foremen, public relations personnel, and landscape architects. It was observed that those competencies performed once a week or more by the majority of these employees included serving as public relations personnel, identifying labor needs, designating employee work assignments, supervising employees, understanding and complying with business laws, training new employees, and establishing and enforcing safety regulations. It was further observed that all of these competencies were in the broad area of management.

For park and highway management labor employees, persons employed as landscape gardeners, equipment operators, mechanics, truck drivers, laborers and tree trimmers, competencies performed once a week or more by a majority included operating mowing equipment; cleaning and sharpening hand tools; light maintenance of business vehicles, trucks, or tractors--oil level, tire pressure, battery, and radiator water levels; and maintaining picnic and rest areas. These observations were made based on data presented in Table 20.

When the responses for all park and highway management employees were pooled and summarized, it was observed that only 6 competencies were performed by a majority of these workers once a month or more. Of the six listed, 5 were competencies performed more often by persons employed in occupations classified as laborer. These six competencies are presented in Table 21.

Responses of retail florist managers, assistant managers, and sales clerks relative to the number of times they perform competencies common to the retail florist industry are presented in Table 22. It was observed that of all competencies listed the majority of these employees performed 40 (54.6%) competencies once a week or more. Of those competencies performed infrequently, the majority were in the broad area of maintenance. Most often performed competencies by this group included describing to customers the purposes and qualities of merchandise for sale, identifying customer needs and wants, using telegram and telephone to accept and send customer orders, using effective interpersonal relationships in dealing with customers, interpreting plant and flower care instructions to the customer, and using cash register or other sales recording device.

Data in Table 23 reveal the frequency of performance of competencies by retail florist labor employees. For this group of workers, only 11 (15.1%) of the 73 competencies listed were performed once a week or more by a majority of the employees. Competencies performed once a week or more, by these employees, included describing to customers the purposes and qualities of merchandise for sale;

Table 19

Frequency of Performance of Competencies
by
Park and Highway Management Managerial Employees

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Establishment of Turf Areas								
Sketch or plot landscape design.	N	0	0	4	8	10	22	1.7
	%	0.0	0.0	18.2	36.4	45.5	100	
Identify ornamental and turf plants.	N	3	4	5	4	6	22	2.7
	%	13.6	18.2	22.7	18.2	27.3	100	
Select time to plant.	N	1	1	3	10	7	22	2.0
	%	4.5	4.5	13.6	45.5	31.8	100	
Select seed.	N	1	0	0	15	6	22	1.8
	%	4.5	0.0	0.0	68.2	27.3	100	
Mix seed.	N	0	0	0	12	10	22	1.6
	%	0.0	0.0	0.0	54.5	45.5	100	
Drain the turf sites.	N	0	0	1	9	12	22	1.5
	%	0.0	0.0	4.5	40.9	54.5	100	
Take soil samples.	N	0	0	2	7	13	22	1.5
	%	0.0	0.0	9.1	31.8	59.1	100	
Determine fertilizer requirements based on soil tests.	N	0	0	1	6	15	22	1.4
	%	0.0	0.0	4.5	27.3	68.2	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Operate equipment to till soil and distribute lime and fertilizer.	N	0	0	3	9	10	22	1.7
	%	0.0	0.0	13.6	40.9	45.5	100	
Level the seedbed.	N	0	0	2	16	4	22	1.9
	%	0.0	0.0	9.1	72.7	18.2	100	
Sow grass seed.	N	0	0	2	14	6	22	1.8
	%	0.0	0.0	9.1	63.6	27.3	100	
Roll the seeded ground.	N	0	0	1	9	12	22	1.5
	%	0.0	0.0	4.5	40.9	54.5	100	
Maintenance of Turf Areas								
Determine need for irrigation.	N	1	0	4	4	13	22	1.7
	%	4.5	0.0	18.2	18.2	59.1	100	
Set up and use irrigation equipment.	N	2	1	2	3	14	22	1.8
	%	9.1	4.5	9.1	13.6	63.6	100	
Determine time at which to mow.	N	6	9	2	3	2	22	3.6
	%	27.3	40.9	9.1	13.6	9.1	100	
Operate mowing equipment.	N	8	2	1	3	8	22	3.0
	%	36.4	9.1	4.5	13.6	36.4	100	
Reestablish turf area by sodding.	N	0	1	3	10	8	22	1.9
	%	0.0	4.5	13.0	45.5	36.4	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Disease, Pest, and Weed Control								
Poison rodents and insects.	N	0	0	4	7	11	22	1.7
	%	0.0	0.0	18.2	31.8	50.0	100	
Operate sprayers.	N	0	1	7	5	9	22	2.0
	%	0.0	4.5	31.8	22.7	40.9	100	
Add chemicals to control weeds, plant diseases, or soil insects.	N	1	2	7	7	5	22	2.4
	%	4.5	9.1	31.8	31.8	22.7	100	
Identify and remove weeds by hand.	N	1	2	8	4	7	22	2.4
	%	4.5	9.1	36.4	18.2	31.8	100	
Tree Care and Maintenance								
Diagnose tree pests, diseases, and other disorders.	N	1	3	5	7	6	22	2.4
	%	4.5	13.6	22.7	31.8	27.3	100	
Spray trees for pests and diseases.	N	0	0	4	4	14	22	1.5
	%	0.0	0.0	18.2	18.2	63.6	100	
Prune and trim shade trees.	N	0	0	10	5	7	22	2.1
	%	0.0	0.0	45.5	22.7	31.8	100	
Trim trees for utility line clearance.	N	0	0	1	5	16	22	1.3
	%	0.0	0.0	4.5	22.7	72.7	100	
Provide winter protection for trees.	N	0	0	1	8	13	22	1.5
	%	0.0	0.0	4.5	36.4	59.1	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Remove broken and storm damaged limbs.	N	0	0	9	8	5	22	2.2
	%	0.0	0.0	40.9	36.4	22.7	100	
Fill tree cavities.	N	0	0	0	6	16	22	1.3
	%	0.0	0.0	0.0	27.3	72.7	100	
Safeguard trees in parking lots.	N	0	0	3	8	11	22	1.6
	%	0.0	0.0	13.6	36.4	50.0	100	
Remove brush and unwanted trees.	N	0	1	5	11	5	22	2.1
	%	0.0	4.5	22.7	50.0	22.7	100	
Remove tree stumps.	N	0	1	1	9	11	22	1.6
	%	0.0	4.5	4.5	40.9	50.0	100	
Haul and dispose of branches to refuse.	N	1	2	5	9	5	22	2.3
	%	4.5	9.1	22.7	40.9	22.7	100	
Cable and brace weak trees or limbs.	N	0	0	4	7	11	22	1.7
	%	0.0	0.0	18.2	31.8	50.0	100	
Test soil.	N	0	0	2	5	15	22	1.4
	%	0.0	0.0	9.1	22.7	68.2	100	
Fertilize established trees.	N	0	2	3	7	10	22	1.9
	%	0.0	9.1	13.6	31.8	45.5	100	
Identify trees.	N	2	4	2	5	9	22	2.3
	%	9.1	18.2	9.1	22.7	40.9	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Control undesirable growth with herbicides or growth retardants.	N	0	1	2	12	7	22	1.9
	%	0.0	4.5	9.1	54.5	31.8	100	
Plant trees or ornamental shrubs.	N	1	0	7	8	6	22	2.2
	%	4.5	0.0	31.8	36.4	27.3	100	
Maintenance								
Clean and sharpen hand tools.	N	7	7	2	1	5	22	3.5
	%	31.8	31.8	9.1	4.5	22.7	100	
Light maintenance of business vehicles, trucks, or tractors - oil level, tire pressure, battery, and radiator water levels.	N	8	5	2	2	5	22	3.4
	%	36.4	22.7	9.1	9.1	22.7	100	
Minor tune-up of business vehicles, trucks, or tractors by replacement of spark plugs and ignition points.	N	3	1	5	4	9	22	2.3
	%	13.6	4.5	22.7	18.2	40.9	100	
Change oil and grease business vehicles, trucks, or tractors.	N	1	3	9	4	5	22	2.6
	%	4.5	13.6	40.9	18.2	22.7	100	
Repair storage structures.	N	0	1	5	10	6	22	2.0
	%	0.0	4.5	22.7	45.5	27.3	100	
Paint storage structures.	N	1	0	2	12	7	22	1.9
	%	4.5	0.0	9.1	54.5	31.8	100	
Order repair parts for vehicles and/or other equipment.	N	4	4	9	3	2	22	3.2
	%	18.2	18.2	40.9	13.6	9.1	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Maintain and repair small gas engines.	N	4	2	5	1	10	22	2.5
	%	18.2	9.1	22.7	4.5	45.5	100	
Maintain and install sprinkler heads, pipe nozzles, and other irrigation equipment.	N	0	1	2	7	12	22	1.6
	%	0.0	4.5	9.1	31.8	54.5	100	
Clean and repair dusters and sprayers.	N	2	0	2	11	7	22	2.0
	%	9.1	0.0	9.1	50.0	31.8	100	
Maintain and repair tillage equipment.	N	1	1	2	10	8	22	2.0
	%	4.5	4.5	9.1	45.5	36.4	100	
Service and repair mowers.	N	7	4	2	3	6	22	3.1
	%	31.8	18.2	9.1	13.6	27.3	100	
Perform heavy maintenance, overhaul, and valve job.	N	1	0	0	6	15	22	1.5
	%	4.5	0.0	0.0	27.3	68.2	100	
Welding, both electric and acetylene.	N	1	4	3	2	12	22	2.1
	%	4.5	18.2	13.6	9.1	54.5	100	
Clean and oil electric motors.	N	1	2	2	10	7	22	2.1
	%	4.5	9.1	9.1	45.5	31.8	100	
Electrical repair of light switches and extension cords.	N	3	1	5	4	9	22	2.3
	%	13.6	4.5	22.7	18.2	40.9	100	
Maintain picnic and rest areas.	N	7	4	2	2	7	22	3.1
	%	31.8	18.2	9.1	9.1	31.8	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Management								
Serve as public relations personnel.	N	12	3	5	0	2	22	4.0
	%	54.5	13.6	22.7	0.0	9.1	100	
Understand and comply with business laws.	N	10	2	5	3	2	22	3.7
	%	45.5	9.1	22.7	13.6	9.1	100	
Administer social security and other employee benefit programs.	N	3	1	0	0	18	22	1.7
	%	13.6	4.5	0.0	0.0	81.8	100	
Identify labor needs.	N	11	4	4	3	0	22	4.0
	%	50.0	18.2	18.2	13.6	0.0	100	
Recruit employees.	N	1	2	1	11	7	22	2.0
	%	4.5	9.1	4.5	50.0	31.8	100	
Interview and select employees.	N	3	0	2	8	9	22	2.1
	%	13.6	0.0	9.1	36.4	40.9	100	
Designate employee work assignments.	N	13	4	2	0	3	22	4.1
	%	59.1	18.2	9.1	0.0	13.6	100	
Supervise employees.	N	18	2	1	0	1	22	4.6
	%	81.8	9.1	4.5	0.0	4.5	100	
Train new employees.	N	9	4	3	5	1	22	3.7
	%	40.9	18.2	13.6	22.7	4.5	100	
Evaluate employee performance.	N	4	5	3	7	3	22	3.0
	%	18.2	22.7	13.6	31.8	13.6	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Perform personnel actions such as promoting or firing.	N	2	1	1	6	12	22	1.8
	%	9.1	4.5	4.5	27.3	54.5	100	
Establish employee wages, hours, and working conditions.	N	4	0	0	6	12	22	2.0
	%	18.2	0.0	0.0	27.3	54.5	100	
Select and purchase seed, fertilizer, and equipment.	N	2	0	6	8	6	22	2.3
	%	9.1	0.0	27.3	36.4	27.3	100	
Establish and enforce safety regulations.	N	10	3	4	3	2	22	3.7
	%	45.5	13.6	18.2	13.6	9.1	100	
Allocate monies in preparing a working budget.	N	1	1	1	4	15	22	1.6
	%	4.5	4.5	4.5	18.2	68.2	100	

Table 20

Frequency of Performance of Competencies
by
Park and Highway Management Labor Employees

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Establishment of Turf Areas								
Sketch or plot landscape design.	N	0	0	3	2	42	47	1.2
	%	0.0	0.0	6.4	4.3	89.4	100	
Identify ornamental and turf plants.	N	2	5	4	4	32	47	1.7
	%	4.3	10.6	8.5	8.5	68.1	100	
Select time to plant.	N	0	0	2	12	33	47	1.3
	%	0.0	0.0	4.3	25.5	70.2	100	
Select seed.	N	0	0	2	4	41	47	1.2
	%	0.0	0.0	4.3	8.5	87.2	100	
Mix seed.	N	1	0	2	7	37	47	1.3
	%	2.1	0.0	4.3	14.9	78.7	100	
Drain the turf sites.	N	0	0	4	5	38	47	1.3
	%	0.0	0.0	8.5	10.6	80.9	100	
Take soil samples.	N	0	0	1	2	44	47	1.1
	%	0.0	0.0	2.1	4.3	93.6	100	
Determine fertilizer requirements based on soil tests.	N	0	0	1	3	43	47	1.1
	%	0.0	0.0	2.1	6.4	91.5	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Operate equipment to till soil and distribute lime and fertilizer.	N	0	2	4	18	23	47	1.7
	%	0.0	4.3	8.5	38.3	48.9	100	
Level the seedbed.	N	0	1	6	15	25	47	1.6
	%	0.0	2.1	12.8	31.9	53.2	100	
Sow grass seed.	N	0	1	6	20	20	47	1.7
	%	0.0	2.1	12.8	42.6	42.6	100	
Roll the seeded ground.	N	0	0	3	14	30	47	1.4
	%	0.0	0.0	6.4	29.8	63.8	100	
Maintenance of Turf Areas								
Determine need for irrigation.	N	3	1	5	4	34	47	1.6
	%	6.4	2.1	10.6	8.5	72.3	100	
Set up and use irrigation equipment.	N	3	2	2	5	35	47	1.6
	%	6.4	4.3	4.3	10.6	74.5	100	
Determine time at which to mow.	N	10	19	2	0	16	47	3.1
	%	21.3	40.4	4.3	.0	34.0	100	
Operate mowing equipment.	N	19	13	1	4	10	47	3.6
	%	40.4	27.7	2.1	8.5	21.3	100	
Reestablish turf area by sodding.	N	1	3	5	18	20	47	1.9
	%	2.1	6.4	10.6	38.3	42.6	100	

158

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Disease, Pest, and Weed Control								
Poison rodents and insects.	N	0	6	4	7	30	47	1.7
	%	0.0	12.8	8.5	14.9	63.8	100	
Operate sprayers.	N	0	6	8	9	24	47	1.9
	%	0.0	12.8	17.0	19.1	51.1	100	
Add chemicals to control weeds, plant diseases, or soil insects.	N	0	5	6	10	26	47	1.8
	%	0.0	10.6	12.8	21.3	55.3	100	
Identify and remove weeds by hand.	N	5	6	8	7	21	47	2.3
	%	10.6	12.8	17.0	14.9	44.7	100	
Tree Care and Maintenance								
Diagnose tree pests, diseases, and other disorders.	N	1	1	4	5	36	47	1.4
	%	2.1	2.1	8.5	10.6	76.6	100	
Spray trees for pests and diseases.	N	0	0	5	10	32	47	1.4
	%	0.0	0.0	10.6	21 3	68.1	100	
Prune and trim shade trees.	N	0	2	7	22	16	47	1.9
	%	0.0	4.3	14.9	46.8	34.0	100	
Trim trees for utility line clearance.	N	0	0	2	9	36	47	1.3
	%	0.0	0.0	4.3	19.1	76.6	100	
Provide winter protection for trees.	N	2	0	2	12	31	47	1.5
	%	4.3	0.0	4.3	25.5	66.0	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Remove broken and storm damaged limbs.	N	2	3	12	17	13	47	2.2
	%	4.3	6.4	25.5	36.2	27.7	100	
Fill tree cavities.	N	0	0	4	7	36	47	1.3
	%	0.0	0.0	8.5	14.9	76.6	100	
Safeguard trees in parking lots.	N	2	1	4	7	33	47	1.6
	%	4.3	2.1	8.5	14.9	70.2	100	
Remove brush and unwanted trees.	N	3	4	9	20	11	47	2.3
	%	6.4	8.5	19.1	42.6	23.4	100	
Remove tree stumps.	N	0	2	5	17	23	47	1.7
	%	0.0	4.3	10.6	36.2	48.9	100	
Haul and dispose of branches to refuse.	N	3	5	10	15	14	47	2.3
	%	6.4	10.6	21.3	31.9	29.8	100	
Cable and brace weak trees or limbs.	N	1	0	2	15	29	47	1.5
	%	2.1	0.0	4.3	31.9	61.7	100	
Test soil.	N	0	0	0	2	45	47	1.0
	%	0.0	0.0	0.0	4.3	95.7	100	
Fertilize established trees.	N	1	0	1	13	32	47	1.4
	%	2.1	0.0	2.1	27.7	68.1	100	
Identify trees.	N	2	2	4	10	29	47	1.7
	%	4.3	4.3	8.5	21.3	61.7	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Control undesirable growth with herbicides or growth retardants.	N	1	0	2	17	27	47	1.5
	%	2.1	0.0	4.3	36.2	57.4	100	
Plant trees or ornamental shrubs.	N	1	3	8	21	14	47	2.1
	%	2.1	6.4	17.0	44.7	29.8	100	
Maintenance								
Clean and sharpen hand tools.	N	17	10	8	4	8	47	3.5
	%	36.2	21.3	17.0	8.5	17.0	100	
Light maintenance of business vehicles, trucks, or tractors - oil level, tire pressure, battery, and radiator water levels.	N	27	8	3	0	9	47	3.9
	%	57.4	17.0	6.4	0.0	19.1	100	
Minor tune-up of business vehicles, trucks, or tractors by replacement of spark plugs and ignition points.	N	3	4	12	7	21	47	2.2
	%	6.4	8.5	25.5	14.9	44.7	100	
Change oil and grease business vehicles, trucks, or tractors.	N	6	8	17	6	10	47	2.9
	%	12.8	17.0	36.2	12.8	21.3	100	
Repair storage structures.	N	1	2	4	21	19	47	1.8
	%	2.1	4.3	8.5	44.7	40.4	100	
Paint storage structures.	N	1	0	9	21	16	47	1.9
	%	2.1	0.0	19.1	44.7	34.0	100	
Order repair parts for vehicles and/or other equipment.	N	5	4	8	3	27	47	2.1
	%	10.6	8.5	17.0	6.4	57.4	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Maintain and repair small gas engines.	N	6	6	6	7	22	47	2.3
	%	12.8	12.8	12.8	14.9	46.8	100	
Maintain and install sprinkler heads, pipe nozzles, and other irrigation equipment.	N	2	2	3	14	26	47	1.7
	%	4.3	4.3	6.4	29.8	55.3	100	
Clean and repair dusters and sprayers.	N	2	3	2	16	24	47	1.8
	%	4.3	6.4	4.3	34.0	51.1	100	
Maintain and repair tillage equipment.	N	5	1	3	8	30	47	1.8
	%	10.6	2.1	6.4	17.0	63.8	100	
Service and repair mowers.	N	11	5	6	5	20	47	2.6
	%	23.4	10.6	12.8	10.6	42.6	100	
Perform heavy maintenance, overhaul, and valve job.	N	2	1	0	4	40	47	1.3
	%	4.3	2.1	0.0	8.5	85.2	100	
Welding, both electric and acetylene.	N	2	2	4	2	37	47	1.5
	%	4.3	4.3	8.5	4.3	78.7	100	
Clean and oil electric motors.	N	3	1	7	5	31	47	1.7
	%	6.4	2.1	14.9	10.6	66.0	100	
Electrical repair of light switches and extension cords.	N	3	2	10	7	25	47	2.0
	%	6.4	4.3	21.3	14.9	53.2	100	
Maintain picnic and rest areas.	N	18	8	2	2	17	47	3.2
	%	38.3	17.0	4.3	4.3	36.2	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Management								
Serve as public relations personnel.	N	11	1	4	1	30	47	2.2
	%	23.4	2.1	8.5	2.1	63.8	100	
Understand and comply with business laws.	N	10	0	2	2	33	47	2.0
	%	21.3	0.0	4.3	4.3	70.2	100	
Administer social security and other employee benefit programs.	N	1	0	3	3	40	47	1.3
	%	2.1	0.0	6.4	6.4	85.2	100	
Identify labor needs.	N	5	2	2	2	36	47	1.7
	%	10.6	4.3	4.3	4.3	76.6	100	
Recruit employees.	N	2	0	2	1	42	47	1.3
	%	4.3	0.0	4.3	2.1	89.4	100	
Interview and select employees.	N	3	0	3	0	41	47	1.4
	%	6.4	0.0	6.4	0.0	87.2	100	
Designate employee work assignments.	N	9	3	0	4	31	47	2.0
	%	19.1	6.4	0.0	8.5	66.0	100	
Supervise employees.	N	11	4	1	6	25	47	2.4
	%	23.4	8.5	2.1	12.8	53.2	100	
Train new employees.	N	4	4	3	9	27	47	1.9
	%	8.5	8.5	6.4	19.1	57.4	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Evaluate employee performance.	N	3	0	3	4	37	47	1.5
	%	6.4	0.0	6.4	8.5	78.7	100	
Perform personnel actions such as promoting or firing.	N	1	0	1	1	44	47	1.1
	%	2.1	0.0	2.1	2.1	93.6	100	
Establish employee wages, hours, and working conditions.	N	1	0	0	0	46	47	1.1
	%	2.1	0.0	0.0	0.0	97.8	100	
Select and purchase seed, fertilizer, and equipment.	N	2	1	1	2	41	47	1.3
	%	4.3	2.1	2.1	4.3	87.2	100	
Establish and enforce safety regulations.	N	6	1	4	2	34	47	1.8
	%	12.8	2.1	8.5	4.3	72.3	100	
Allocate monies in preparing a working budget.	N	1	0	0	1	45	47	1.1
	%	2.1	0.0	0.0	2.1	95.7	100	

Table 21

Competencies Most Frequently Performed

by

All Park and Highway Management Employees

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Light maintenance of business vehicles, trucks, or tractors - oil level, tire pressure, battery, and radiator water levels.	N	35	13	5	2	14	69	3.8
	%	50.0	18.6	7.1	2.9	20.0	100	
Clean and sharpen hand tools.	N	24	17	10	5	13	69	3.5
	%	34.3	24.3	14.3	7.1	18.6	100	
Operate mowing equipment.	N	27	15	2	7	18	69	3.4
	%	38.6	21.4	2.9	10.0	25.7	100	
Determine time at which to mow.	N	16	28	4	3	18	69	3.3
	%	22.9	40.0	5.7	4.3	25.7	100	
Maintain picnic and rest areas.	N	25	12	4	4	24	69	3.1
	%	35.7	17.1	5.7	5.7	34.3	100	
Supervise employees.	N	29	6	2	6	26	69	3.1
	%	41.4	8.6	2.9	8.6	37.1	100	

Table 22

Frequency of Performance of Competencies
by
Retail Florist Management and Sales Employees

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Sales								
Describe to customers the purposes and qualities of merchandise for sale.	N	36	3	0	0	1	40	4.8
	%	90.0	7.5	0.0	0.0	2.5	100	
Identify customer needs and wants.	N	36	3	0	0	1	40	4.8
	%	90.0	7.5	0.0	0.0	2.5	100	
Use telegram and telephone to accept and send customer orders.	N	37	2	0	0	1	40	4.8
	%	92.5	5.0	0.0	0.0	2.5	100	
Follow-up sales to determine customer satisfaction.	N	18	12	6	1	3	40	4.0
	%	45.0	30.0	15.0	2.5	7.5	100	
Give estimates on costs of flowers and plants for weddings, funerals, etc.	N	31	4	2	0	3	40	4.5
	%	77.5	10.0	5.0	0.0	7.5	100	
Identify horticultural plants.	N	26	12	1	0	1	40	4.5
	%	65.0	30.0	2.5	0.0	2.5	100	
Solicit sales by telephone.	N	5	7	4	1	23	40	2.3
	%	12.5	17.5	10.0	2.5	57.5	100	
Use effective interpersonal relationships in dealing with customers.	N	35	4	0	0	1	40	4.8
	%	87.5	10.0	0.0	0.0	2.5	100	
Interpret plant and flower care instructions to the customer.	N	34	6	0	0	0	40	4.8
	%	85.0	15.0	0.0	0.0	0.0	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Use supplier advertising materials.	N	18	8	9	1	4	40	3.9
	%	45.0	20.0	22.5	2.5	10.0	100	
Use credit systems of payment.	N	30	2	1	0	7	40	4.2
	%	75.0	5.0	2.5	0.0	17.5	100	
Label and price mark merchandise.	N	20	13	5	0	2	40	4.2
	%	50.0	32.5	12.5	0.0	5.0	100	
Use cash register or other sales recording device.	N	38	1	0	0	1	40	4.9
	%	95.0	2.5	0.0	0.0	2.5	100	
Display store merchandise for sale.	N	27	7	4	0	2	40	4.4
	%	67.5	17.5	10.0	0.0	5.0	100	
Wrap and package flowers sold.	N	35	1	1	0	3	40	4.6
	%	87.5	2.5	2.5	0.0	7.5	100	
Ship and deliver merchandise.	N	20	7	4	1	8	40	3.8
	%	50.0	17.5	10.0	2.5	20.0	100	
Stock shelves.	N	16	10	6	3	5	40	3.7
	%	40.0	25.0	15.0	7.5	12.5	100	
Explain and demonstrate the use of accessory sales items: candles, vases, cards, candy, etc.	N	27	7	2	0	4	40	4.3
	%	67.5	17.5	5.0	0.0	10.0	100	
Verify customer addresses using directories.	N	28	8	2	0	2	40	4.5
	%	70.0	20.0	5.0	0.0	5.0	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Identify flower and plant insect and disease infestations.	N	16	10	6	0	8	40	3.7
	%	40.0	25.0	15.0	0.0	20.0	100	
Write up customer orders.	N	38	1	0	0	1	40	4.9
	%	95.0	2.5	0.0	0.0	2.5	100	
Use FTD's speedy gift service.	N	16	3	2	2	17	40	3.0
	%	40.0	7.5	5.0	5.0	42.5	100	
Design								
Select flowers and foliage for arrangements.	N	29	4	1	0	6	40	4.3
	%	72.5	10.0	2.5	0.0	15.0	100	
Spray paint floral products.	N	23	7	3	0	7	40	4.0
	%	57.5	17.5	7.5	0.0	17.5	100	
Decorate rooms with flowers and plants.	N	14	7	11	0	8	40	3.5
	%	35.0	17.5	27.5	0.0	20.0	100	
Construct floral arrangements for store sales.	N	21	4	1	1	13	40	3.5
	%	52.5	10.0	2.5	2.5	32.5	100	
Set up displays at funeral homes and churches.	N	10	11	7	2	10	40	3.2
	%	25.0	27.5	17.5	5.0	25.0	100	
Display flowers, plants and supplies.	N	29	5	0	0	6	40	4.3
	%	72.5	12.5	0.0	0.0	15.0	100	
Design floral arrangements to meet customer specifications.	N	27	0	2	1	10	40	3.8
	%	67.5	0.0	5.0	2.5	25.0	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Records								
Keep records of receipts and expenses.	N	28	1	2	0	9	40	4.0
	%	70.0	2.5	5.0	0.0	22.5	100	
Make out and mail bills to collect accounts due.	N	7	0	19	0	14	40	2.7
	%	17.5	0.0	47.5	0.0	35.0	100	
Check credit references of customers.	N	21	6	5	1	7	40	3.8
	%	52.5	15.0	12.5	2.5	17.5	100	
Perform filing tasks.	N	17	6	5	0	12	40	3.4
	%	42.5	15.0	12.5	0.0	30.0	100	
Keep employee work records.	N	14	8	2	1	15	40	3.1
	%	35.0	20.0	5.0	2.5	37.5	100	
Prepare employee payroll.	N	5	18	1	1	15	40	2.9
	%	12.5	45.0	2.5	2.5	37.5	100	
Pay accounts payable.	N	11	7	8	1	13	40	3.0
	%	27.5	17.5	20.0	2.5	32.5	100	
Assist in records audit.	N	7	3	8	7	15	40	2.5
	%	17.5	7.5	20.0	17.5	37.5	100	
Prepare income tax and other government reports.	N	2	0	8	3	27	40	1.7
	%	5.0	0.0	20.0	7.5	67.5	100	
Keep annual depreciation schedule.	N	2	0	1	0	10	40	1.5
	%	5.0	0.0	2.5	0.0	25.0	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Keep customer credit records.	N	14	6	8	1	11	40	3.3
	%	35.0	15.0	20.0	2.5	27.5	100	
Use adding machine and/or other tabulation devices in balancing accounts.	N	25	2	4	0	9	40	3.8
	%	62.5	5.0	10.0	0.0	22.5	100	
Inventory								
Keep current inventory of merchandise for sale.	N	16	8	5	3	8	40	3.5
	%	40.0	20.0	12.5	7.5	20.0	100	
Check invoices for math errors.	N	21	4	5	2	8	40	3.7
	%	52.5	10.0	12.5	5.0	20.0	100	
Take annual inventory for tax purposes.	N	1	0	1	29	9	40	1.9
	%	2.5	0.0	2.5	72.5	22.5	100	
Store flowers and other plants.	N	25	9	1	0	5	40	4.2
	%	62.5	22.5	2.5	0.0	12.5	100	
Arrange for transportation of materials purchased.	N	21	5	2	0	12	40	3.6
	%	52.5	12.5	5.0	0.0	30.0	100	
Order replacement and/or new merchandise for sale.	N	21	10	5	1	3	40	4.1
	%	52.5	25.0	12.5	2.5	7.5	100	
Prepare advertising materials.	N	6	12	12	1	9	40	3.1
	%	15.0	30.0	30.0	2.5	22.5	100	
Keep price lists and catalogs current.	N	10	8	12	1	9	40	3.2
	%	25.0	20.0	30.0	2.5	22.5	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Maintenance								
Keep work, storage, and delivery areas neat and clean.	N	27	6	2	1	4	40	4.3
	%	67.5	15.0	5.0	2.5	10.0	100	
Clean and sharpen hand tools.	N	9	10	8	0	13	40	3.0
	%	22.5	25.0	20.0	0.0	32.5	100	
Perform light maintenance of business vehicle or tractor - oil level, tire pressure, battery and radiator water levels.	N	6	7	2	1	24	40	2.3
	%	15.0	17.5	5.0	2.5	60.0	100	
Perform minor tune-up of business vehicle or tractor by replacement of spark plugs and ignition points.	N	4	0	2	4	30	40	1.6
	%	10.0	0.0	5.0	10.0	75.0	100	
Change oil and grease business vehicle or tractor.	N	4	0	6	2	28	40	1.8
	%	10.0	0.0	15.0	5.0	70.0	100	
Perform electrical repair of light switches and extension cords.	N	4	1	6	4	25	40	1.9
	%	10.0	2.5	15.0	10.0	62.5	100	
Paint shelves or display cases.	N	2	0	6	14	18	40	1.8
	%	5.0	0.0	15.0	35.0	45.0	100	
Perform plumbing repair of worn gaskets or valves.	N	2	0	5	5	28	40	1.6
	%	5.0	0.0	12.5	12.5	70.0	100	
Perform carpentry repairs.	N	3	1	9	5	22	40	2.0
	%	7.5	2.5	22.5	12.5	55.0	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Keep customer areas neat and clean.	N	28	6	2	0	4	40	4.3
	%	70.0	15.0	5.0	0.0	10.0	100	
Management								
Report and pay federal, state, and local taxes.	N	2	0	13	5	20	40	2.0
	%	5.0	0.0	32.5	12.5	50.0	100	
Understand and comply with business laws.	N	27	3	0	3	7	40	4.0
	%	67.5	7.5	0.0	7.5	17.5	100	
Administer social security and other employee benefit programs.	N	5	4	11	1	19	40	2.4
	%	12.5	10.0	27.5	2.5	47.5	100	
Identify labor needs.	N	20	6	2	2	10	40	3.6
	%	50.0	15.0	5.0	5.0	25.0	100	
Recruit employees.	N	10	0	4	17	9	40	2.6
	%	25.0	0.0	10.0	42.5	22.5	100	
Interview and select employees.	N	8	1	6	16	9	40	2.6
	%	20.0	2.5	15.0	40.0	22.5	100	
Designate employee work assignments.	N	32	3	0	1	4	40	4.5
	%	80.0	7.5	0.0	2.5	10.0	100	
Supervise employees.	N	35	1	0	0	4	40	4.6
	%	87.5	2.5	0.0	0.0	10.0	100	
Train new employees.	N	19	0	7	10	4	40	3.5
	%	47.5	0.0	17.5	25.0	10.0	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Evaluate employee performance.	N	22	8	3	2	5	40	4.0
	%	55.0	20.0	7.5	5.0	12.5	100	
Perform personnel actions such as promoting or firing.	N	10	1	3	16	10	40	2.6
	%	25.0	2.5	7.5	40.0	25.0	100	
Establish employee wages, hours, and working conditions.	N	11	4	8	5	12	40	2.9
	%	27.5	10.0	20.0	12.5	30.0	100	
Determine business credit needs.	N	9	2	7	8	14	40	2.6
	%	22.5	5.0	17.5	20.0	35.0	100	
Locate sources of, and secure credit.	N	5	5	4	9	17	40	2.3
	%	12.5	12.5	10.0	22.5	42.5	100	
Determine need for, and purchase comprehensive business insurance.	N	3	0	3	15	19	40	1.8
	%	7.5	0.0	7.5	37.5	47.5	100	
Select and purchase equipment and expendables not for sale.	N	6	2	14	8	10	40	2.7
	%	15.0	5.0	35.0	20.0	25.0	100	
Determine kinds and amounts of flowers and plants to stock.	N	27	4	3	2	4	40	4.2
	%	67.5	10.0	7.5	5.0	10.0	100	
Identify and select producers and suppliers of flowers, plants, and materials.	N	23	7	2	0	8	40	4.0
	%	57.5	17.5	5.0	0.0	20.0	100	
Establish and enforce safety regulations.	N	24	2	7	1	6	40	4.0
	%	60.0	5.0	17.5	2.5	15.0	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Allocate monies in preparing working budget.	N	9	3	9	0	19	40	2.6
	%	22.5	7.5	22.5	0.0	47.5	100	
Analyze the business enterprises on cost and return basis.	N	8	5	10	2	15	40	2.7
	%	20.0	12.5	25.0	5.0	37.5	100	
Participate in horticulture trade organizations.	N	6	2	9	6	17	40	2.3
	%	15.0	5.0	22.5	15.0	42.5	100	
Plan business advertising.	N	10	11	9	0	10	40	3.3
	%	25.0	27.5	22.5	0.0	25.0	100	
Negotiate sales contracts.	N	12	6	4	2	16	40	2.9
	%	30.0	15.0	10.0	5.0	40.0	100	

Table 23

Frequency of Performance of Competencies

by

Retail Florist Labor Employees

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Sales								
Describe to customers the purposes and qualities of merchandise for sale.	N	67	5	2	1	17	92	4.1
	%	72.8	5.4	2.2	1.1	18.5	100	
Identify customer needs and wants.	N	70	4	2	1	15	92	4.2
	%	76.1	4.3	2.2	1.1	16.3	100	
Use telegram and telephone to accept and send customer orders.	N	69	4	1	2	16	92	4.2
	%	75.0	4.3	1.1	2.2	17.4	100	
Follow-up sales to determine customer satisfaction.	N	27	10	16	0	39	92	2.8
	%	29.3	10.9	17.4	0.0	42.4	100	
Give estimates on costs of flowers and plants for weddings, funerals, etc.	N	59	9	4	0	20	92	3.9
	%	64.1	9.8	4.3	0.0	21.7	100	
Identify horticultural plants.	N	48	17	6	0	21	92	3.8
	%	52.2	18.5	6.5	0.0	22.8	100	
Solicit sales by telephone.	N	19	2	3	0	68	92	2.0
	%	20.7	2.2	3.3	0.0	73.9	100	
Use effective interpersonal relationships in dealing with customers.	N	71	7	4	0	10	92	4.4
	%	77.2	7.6	4.3	0.0	10.9	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Interpret plant and flower care instructions to the customer.	N	61	16	2	2	11	92	4.2
	%	66.3	17.4	2.2	2.2	12.0	100	
Use supplier advertising materials.	N	29	11	17	2	33	92	3.0
	%	31.5	12.0	18.5	2.2	35.9	100	
Use credit systems of payment.	N	52	4	4	3	29	92	3.5
	%	56.5	4.3	4.3	3.3	31.5	100	
Label and price mark merchandise.	N	39	21	14	4	14	92	3.7
	%	42.4	22.8	15.2	4.3	15.2	100	
Use cash register or other sales recording device.	N	64	6	4	0	18	92	4.1
	%	69.6	6.5	4.3	0.0	19.0	100	
Display store merchandise for sale.	N	47	15	7	5	18	92	3.7
	%	51.1	16.3	7.6	5.4	19.6	100	
Wrap and package flowers sold.	N	73	6	4	1	8	92	4.5
	%	79.3	6.5	4.3	1.1	8.7	100	
Ship and deliver merchandise.	N	29	6	11	4	42	92	2.7
	%	31.5	6.5	12.0	4.3	45.7	100	
Stock shelves.	N	38	20	16	5	13	92	3.7
	%	41.3	21.7	17.4	5.4	14.1	100	
Explain and demonstrate the use of accessory sales items: candles, vases, cards, candy, etc.	N	56	12	4	0	20	92	3.9
	%	60.9	13.0	4.3	0.0	21.7	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Verify customer addresses using directories.	N	62	14	9	1	6	92	4.4
	%	67.4	15.2	9.8	1.1	6.5	100	
Identify flower and plant insect and disease infestations.	N	17	20	18	6	31	92	2.8
	%	18.5	21.7	19.6	6.5	33.7	100	
Write up customer orders.	N	72	4	1	1	14	92	4.3
	%	78.3	4.3	1.1	1.1	15.2	100	
Use FTD's speedy gift service.	N	27	6	13	6	40	92	2.7
	%	29.3	6.5	14.1	6.5	43.5	100	
Design								
Select flowers and foliage for arrangements.	N	60	7	1	0	24	92	3.9
	%	65.2	7.6	1.1	0.0	26.1	100	
Spray paint floral products.	N	35	21	13	2	21	92	3.5
	%	38.0	22.8	14.1	2.2	22.8	100	
Decorate rooms with flowers and plants.	N	28	8	10	7	39	92	2.8
	%	30.4	8.7	10.9	7.6	42.4	100	
Construct floral arrangements for store sales.	N	39	8	4	1	40	92	3.1
	%	42.4	8.7	4.3	1.1	43.5	100	
Set up displays at funeral homes and churches.	N	12	12	13	5	50	92	2.3
	%	13.0	13.0	14.1	5.4	54.3	100	
Display flowers, plants and supplies.	N	54	9	7	2	20	92	3.8
	%	58.7	9.8	7.6	2.2	21.7	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Design floral arrangements to meet customer specifications.	N	44	9	0	1	38	92	3.2
	%	47.8	9.8	0.0	1.1	41.3	100	
Records								
Keep records of receipts and expenses.	N	26	2	4	0	60	92	2.3
	%	28.3	2.2	4.3	0.0	65.2	100	
Make out and mail bills to collect accounts due.	N	13	3	21	1	54	92	2.1
	%	14.1	3.3	22.8	1.1	58.7	100	
Check credit references of customers.	N	26	7	8	2	49	92	2.6
	%	28.3	7.6	8.7	2.2	53.3	100	
Perform filing tasks.	N	27	10	5	0	50	92	2.6
	%	29.3	10.9	5.4	0.0	54.3	100	
Keep employee work records.	N	4	7	2	1	78	92	1.5
	%	4.3	7.6	2.2	1.1	84.8	100	
Prepare employee payroll.	N	2	4	3	4	79	92	1.3
	%	2.2	4.3	3.3	4.3	85.9	100	
Pay accounts payable.	N	4	4	6	3	75	92	1.5
	%	4.3	4.3	6.5	3.3	81.5	100	
Assist in records audit.	N	3	1	2	6	80	92	1.3
	%	3.3	1.1	2.2	6.5	87.0	100	
Prepare income tax and other government reports.	N	0	1	3	3	85	92	1.1
	%	0.0	1.1	3.3	3.3	92.4	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Keep annual depreciation schedule.	N	0	0	1	5	86	92	1.1
	%	0.0	0.0	1.1	5.4	93.5	100	
Keep customer credit records.	N	20	3	6	1	62	92	2.1
	%	21.7	3.3	6.5	1.1	67.4	100	
Use adding machine and/or other tabulation devices in balancing accounts.	N	30	5	3	0	54	92	2.5
	%	32.6	5.4	3.3	0.0	58.7	100	
Inventory								
Keep current inventory of merchandise for sale.	N	17	8	6	13	48	92	2.3
	%	18.5	8.7	6.5	14.1	52.2	100	
Check invoices for math errors.	N	21	9	9	1	52	92	2.4
	%	22.8	9.8	9.8	1.1	56.5	100	
Take annual inventory for tax purposes.	N	2	0	2	36	52	92	1.5
	%	2.2	0.0	2.2	39.1	56.5	100	
Store flowers and other plants.	N	40	9	8	4	31	92	3.3
	%	43.5	9.8	8.7	4.3	33.7	100	
Arrange for transportation of materials purchased.	N	21	3	4	1	63	92	2.1
	%	22.8	3.3	4.3	1.1	68.5	100	
Order replacement and/or new merchandise for sale.	N	11	15	10	4	52	92	2.2
	%	12.0	16.3	10.9	4.3	56.5	100	
Prepare advertising materials.	N	2	6	10	3	71	92	1.5
	%	2.2	6.5	10.9	3.3	77.2	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Keep price lists and catalogs current.	N	9	9	12	2	60	92	2.0
	%	9.8	9.8	13.0	2.2	65.2	100	
Maintenance								
Keep work, storage, and delivery areas neat and clean.	N	66	8	1	1	16	92	4.2
	%	71.7	8.7	1.1	1.1	17.4	100	
Clean and sharpen hand tools.	N	15	17	15	1	44	92	2.5
	%	16.3	18.5	16.3	1.1	47.8	100	
Perform light maintenance of business vehicle or tractor - oil level, tire pressure, battery and radiator water levels.	N	16	2	2	1	71	92	1.8
	%	17.4	2.2	2.2	1.1	77.2	100	
Perform minor tune-up of business vehicle or tractor by replacement of spark plugs and ignition points.	N	3	0	5	0	84	92	1.2
	%	3.3	0.0	5.4	0.0	91.3	100	
Change oil and grease business vehicle or tractor.	N	3	0	7	1	81	92	1.3
	%	3.3	0.0	7.6	1.1	88.0	100	
Perform electrical repair of light switches and extension cords.	N	2	4	6	4	76	92	1.4
	%	2.2	4.3	6.5	4.3	82.6	100	
Paint shelves or display cases.	N	2	1	7	20	62	92	1.5
	%	2.2	1.1	7.6	21.7	67.4	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Perform plumbing repair by replacement of worn gaskets or valves.	N	2	1	5	7	77	92	1.3
	%	2.2	1.1	5.4	7.6	83.7	100	
Perform carpentry repairs.	N	3	2	12	9	66	92	1.6
	%	3.3	2.2	13.0	9.8	71.7	100	
Keep customer areas neat and clean.	N	64	8	4	1	15	92	4.1
	%	69.6	8.7	4.3	1.1	16.3	100	
Management								
Report and pay federal, state, and local taxes.	N	0	1	3	2	86	92	1.1
	%	0.0	1.1	3.3	2.2	93.5	100	
Understand and comply with business laws.	N	13	1	4	2	72	92	1.7
	%	14.1	1.1	4.3	2.2	78.3	100	
Administer social security and other employee benefit programs.	N	0	1	2	0	89	92	1.1
	%	0.0	1.1	2.2	0.0	96.7	100	
Identify labor needs.	N	3	4	2	2	81	92	1.3
	%	3.3	4.3	2.2	2.2	88.0	100	
Recruit employees.	N	1	1	2	6	82	92	1.2
	%	1.1	1.1	2.2	6.5	89.1	100	
Interview and select employees.	N	0	0	3	6	83	92	1.1
	%	0.0	0.0	3.3	6.5	90.2	100	
Designate employee work assignments.	N	9	4	8	1	70	92	1.7
	%	9.8	4.3	8.7	1.1	76.1	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Supervise employees.	N	17	2	6	3	64	92	2.0
	%	18.5	2.2	6.5	3.3	69.6	100	
Train new employees.	N	12	1	10	11	58	92	1.9
	%	13.0	1.1	10.9	12.0	63.0	100	
Evaluate employee performance.	N	9	3	4	6	70	92	1.6
	%	9.8	3.3	4.3	6.5	76.1	100	
Perform personnel actions such as promoting or firing.	N	0	0	0	3	89	92	1.0
	%	0.0	0.0	0.0	3.3	96.7	100	
Establish employee wages, hours, and working conditions.	N	0	0	1	3	88	92	1.1
	%	0.0	0.0	1.1	3.3	95.7	100	
Determine business credit needs.	N	1	0	1	1	89	92	1.1
	%	1.1	0.0	1.1	1.1	96.7	100	
Locate sources of, and secure credit.	N	0	0	2	2	88	92	1.1
	%	0.0	0.0	2.2	2.2	95.7	100	
Determine needs for, and purchase comprehensive business insurance.	N	0	0	1	1	90	92	1.0
	%	0.0	0.0	1.1	1.1	97.8	100	
Select and purchase equipment and expendables not for sale.	N	1	4	5	3	79	92	1.3
	%	1.1	4.3	5.4	3.3	85.9	100	
Determine kinds and amounts of flowers and plants to stock.	N	14	6	7	2	63	92	2.0
	%	15.2	6.5	7.6	2.2	68.5	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Identify and select producers and suppliers of flowers, plants, and materials.	N	10	3	2	1	76	92	1.6
	%	10.9	3.3	2.2	1.1	82.6	100	
Establish and enforce safety regulations.	N	11	3	3	1	74	92	1.7
	%	12.0	3.3	3.3	1.1	80.4	100	
Allocate monies in preparing working budget.	N	0	4	3	0	85	92	1.2
	%	0.0	4.3	3.3	0.0	92.4	100	
Analyze the business enterprises on cost and return basis.	N	1	4	3	0	84	92	1.2
	%	1.1	4.3	3.3	0.0	91.3	100	
Participate in horticulture trade organizations.	N	1	1	3	9	78	92	1.2
	%	1.1	1.1	3.3	9.8	84.8	100	
Plan business advertising.	N	2	3	5	1	80	92	1.3
	%	2.2	3.3	5.4	1.1	88.0	100	
Negotiate sales contracts.	N	3	1	2	2	84	92	1.2
	%	3.3	1.1	2.2	2.2	91.3	100	

identifying customer needs and wants; using telegram and telephone to accept and send customer orders; using effective interpersonal relationships in dealing with customers; interpreting plant and flower care instructions to the customer; using cash register or other sales recording device; wrapping and packaging flowers sold; verifying customer addresses using directories; writing up customer orders; and keeping work, storage, and delivery areas neat and clean.

Data presented in Table 24 reveal those competencies performed once a month or more by all retail florist employees studied. As can readily be observed, competencies most frequently performed by all employees were in the broad areas of sales and design.

Describing to customers the purposes and qualities of merchandise for sale, identifying customer needs and wants, taking orders for sale by telephone, soliciting sales by telephone, using effective interpersonal relationships in dealing with customers, using credit systems of payment, writing up customer orders for packing personnel, making up customer orders, checking received goods for spoilage and damage, sorting for quality prior to shipment, packaging orders for shipment, and keeping work, storage, and delivery areas neat and clean were competencies performed daily by a majority of wholesale florist management and sales employees. These observations were based on data presented in Table 25. In the main, these competencies were in the broad areas of sales and inventory control.

Data presented in Table 26 reveal the frequency of performance of competencies by wholesale florist labor employees. One might conclude, based on the low mean scores for each of the competencies listed, that employees in this occupational group require few skills to adequately perform tasks in their various occupations. An alternate observation one might suggest is that these workers perform those tasks on a seasonal basis and reflected this seasonality in their responses. Competencies performed once a month by this group included describing to customers the purposes and qualities of merchandise for sale, using effective interpersonal relationships in dealing with customers, checking invoices for math errors, and keeping work, storage, and delivery areas neat and clean.

Data in Table 27 reveal the most frequently performed competencies by all wholesale florist employees. In the main, the competencies were oriented to selling and marketing phases of this horticultural industry.

Designating employee work assignments, supervising employees, identifying labor needs, understanding and complying with business laws, taking orders for sales by telephone, writing customer orders, and describing to customers the purposes and qualities of plants for sale were those competencies performed once a week or more by nursery production management and sales employees. These observations

Table 24

Competencies Most Frequently Performed

by

All Retail Florist Employees

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Use effective interpersonal relationships in dealing with customers.	N	106	11	4	0	11	132	4.5
	%	80.3	8.3	3.0	0.0	8.3	100	
Write up customer orders.	N	110	5	1	1	15	132	4.5
	%	83.3	3.8	0.8	0.8	11.4	100	
Wrap and package flowers sold.	N	108	7	5	1	11	132	4.5
	%	81.8	5.3	3.5	0.8	8.3	100	
Identify customer needs and wants.	N	106	7	2	1	16	132	4.4
	%	80.3	5.3	1.5	0.8	12.1	100	
Use telegram and telephone to accept and send customer orders.	N	106	6	1	2	17	132	4.4
	%	80.3	4.5	0.8	1.5	12.9	100	
Interpret plant and flower care instructions to the customer.	N	95	22	2	2	11	132	4.4
	%	72.0	16.7	1.5	1.5	8.3	100	
Verify customer addresses using directories.	N	90	22	11	1	8	132	4.4
	%	68.2	16.7	8.3	0.8	6.1	100	
Use cash register or other sales recording device.	N	102	7	4	0	19	132	4.3
	%	77.3	5.3	3.0	0.0	14.4	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Describe to customers the purposes and qualities of merchandise for sale.	N	103	8	2	1	18	132	4.3
	%	78.0	6.1	1.5	0.8	13.6	100	
Keep work, storage, and delivery areas neat and clean.	N	93	14	3	2	20	132	4.2
	%	70.5	10.6	2.3	1.5	15.2	100	
Keep customer areas neat and clean.	N	92	14	6	1	19	132	4.2
	%	69.7	10.6	4.5	0.8	14.4	100	
Give estimates on costs of flowers and plants for weddings, funerals, etc.	N	90	13	6	0	23	132	4.1
	%	68.2	9.8	4.5	0.0	17.4	100	
Identify horticultural plants.	N	74	29	7	0	22	132	4.0
	%	56.1	22.0	5.3	0.0	16.7	100	
Explain and demonstrate the use of accessory sales items: candles, vases, cards, candy, etc.	N	83	19	6	0	24	132	4.0
	%	62.9	14.4	4.5	0.0	18.2	100	
Select flowers and foliage for arrangements.	N	89	11	2	0	30	132	4.0
	%	67.4	8.3	1.5	0.0	22.7	100	
Display flowers, plants and supplies.	N	83	14	7	2	26	132	4.0
	%	62.9	0.6	5.3	1.5	19.7	100	
Label and price mark merchandise.	N	59	34	19	4	16	132	3.9
	%	44.7	25.8	14.4	3.0	12.1	100	
Display store merchandise for sale.	N	74	22	11	5	20	132	3.9
	%	56.1	16.7	8.3	3.8	15.2	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Use credit systems of payment.	N	82	6	5	3	36	132	3.7
	%	62.1	4.5	3.8	2.3	27.3	100	
Stock shelves.	N	54	30	22	8	18	132	3.7
	%	40.9	22.7	16.7	6.1	13.6	100	
Spray paint floral products.	N	58	28	16	2	28	132	3.7
	%	43.9	21.2	12.1	1.5	21.2	100	
Store flowers and other plants.	N	65	18	9	4	36	132	3.5
	%	49.2	13.6	6.8	3.0	27.3	100	
Design floral arrangements to meet customer specifications.	N	71	9	2	2	48	132	3.4
	%	53.8	6.8	1.5	1.5	36.4	100	
Use supplier advertising materials.	N	47	19	26	3	37	132	3.3
	%	35.6	14.4	19.7	2.3	28.0	100	
Follow-up sales to determine customer satisfaction.	N	45	22	22	1	42	132	3.2
	%	34.1	16.7	16.7	0.8	31.8	100	
Construct floral arrangements for store sales.	N	60	12	5	2	53	132	3.2
	%	45.5	9.1	3.8	1.5	40.2	100	
Identify flower and plant insect and disease infestations.	N	33	30	24	6	39	132	3.1
	%	25.0	22.7	18.2	4.5	29.5	100	
Decorate rooms with flowers and plants.	N	42	15	21	7	47	132	3.0
	%	31.8	11.4	15.9	5.3	35.6	100	
Ship and deliver merchandise.	N	49	13	15	5	50	132	3.0
	%	37.1	9.8	11.4	3.8	37.9	100	

Table 25

Frequency of Performance of Competencies
by
Wholesale Florist Management and Sales Employees

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Sales								
Describe to customers the purposes and qualities of merchandise for sale.	N	8	1	1	0	0	10	4.7
	%	80.0	10.0	10.0	0.0	0.0	100	
Identify customer needs and wants.	N	9	1	0	0	0	10	4.9
	%	90.0	10.0	0.0	0.0	0.0	100	
Take orders for sales by telephone.	N	8	1	1	0	0	10	4.7
	%	80.0	10.0	10.0	0.0	0.0	100	
Follow-up sales to determine customer satisfaction.	N	4	3	1	0	2	10	3.7
	%	40.0	30.0	10.0	0.0	20.0	100	
Make cost estimates on customer orders.	N	2	5	2	0	1	10	3.7
	%	20.0	50.0	20.0	0.0	10.0	100	
Identify horticultural plants.	N	2	2	2	0	4	10	2.8
	%	20.0	20.0	20.0	0.0	40.0	100	
Solicit sales by telephone.	N	6	2	1	0	1	10	4.2
	%	60.0	20.0	10.0	0.0	10.0	100	
Use effective interpersonal relationships in dealing with customers.	N	7	1	2	0	0	10	4.5
	%	70.0	10.0	20.0	0.0	0.0	100	
Prepare advertising materials.	N	0	3	5	2	0	10	3.1
	%	0.0	30.0	50.0	20.0	0.0	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Use supplier advertising materials.	N	0	3	4	1	2	10	2.8
	%	0.0	30.0	40.0	10.0	20.0	100	
Use various types of advertising such as mail, radio, and newspaper ads.	N	0	0	6	3	1	10	2.5
	%	0.0	0.0	60.0	30.0	10.0	100	
Use credit systems of payment.	N	7	0	1	0	2	10	4.0
	%	70.0	0.0	10.0	0.0	20.0	100	
See plant and flower care instructions to retailers.	N	2	2	3	2	1	10	3.2
	%	20.0	20.0	30.0	20.0	10.0	100	
Verify customer addresses using directories.	N	1	2	4	2	1	10	3.0
	%	10.0	20.0	40.0	20.0	10.0	100	
Write up customer orders for packing personnel.	N	9	0	1	0	0	10	4.8
	%	90.0	0.0	10.0	0.0	0.0	100	
Processing and Shipment								
Make up customer orders.	N	8	0	2	0	0	10	4.6
	%	80.0	0.0	20.0	0.0	0.0	100	
Presort incoming plant materials.	N	3	5	0	1	1	10	3.8
	%	30.0	50.0	0.0	10.0	10.0	100	
Check received goods for spoilage and damage.	N	7	3	0	0	0	10	4.7
	%	70.0	30.0	0.0	0.0	0.0	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Quality sort prior to shipment.	N	10	0	0	0	0	10	5.0
	%	100	0.0	0.0	0.0	0.0	100	
Package orders for shipment.	N	8	0	2	0	0	10	4.6
	%	80.0	0.0	20.0	0.0	0.0	100	
Make out bus tickets, labels, and invoices for shipping.	N	6	1	1	0	2	10	3.9
	%	60.0	10.0	10.0	0.0	20.0	100	
Arrange transportation for shipments sold.	N	5	4	1	0	0	10	4.4
	%	50.0	40.0	10.0	0.0	0.0	100	
Check storage temperatures of refrigeration units.	N	4	0	1	0	5	10	2.8
	%	40.0	0.0	10.0	0.0	50.0	100	
Records								
Keep records of receipts and expenses.	N	5	0	1	0	4	10	3.2
	%	50.0	0.0	10.0	0.0	40.0	100	
Make out and mail bills to collect accounts due.	N	1	0	2	0	7	10	1.8
	%	10.0	0.0	20.0	0.0	70.0	100	
Check credit references of customers.	N	0	3	2	1	4	10	2.4
	%	0.0	30.0	20.0	10.0	40.0	100	
Perform filing tasks.	N	2	2	0	0	6	10	2.4
	%	20.0	20.0	0.0	0.0	60.0	100	
Perform typing and mailing tasks.	N	1	2	2	0	5	10	2.4
	%	10.0	20.0	20.0	0.0	50.0	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Keep employee work records.	N	1	1	2	1	5	10	2.2
	%	10.0	10.0	20.0	10.0	50.0	100	
Prepare employee payroll.	N	0	1	2	0	7	10	1.7
	%	0.0	10.0	20.0	0.0	70.0	100	
Pay accounts payable.	N	1	1	1	0	7	10	1.9
	%	10.0	10.0	10.0	0.0	70.0	100	
Assist in records audit.	N	0	1	1	3	5	10	1.8
	%	0.0	10.0	10.0	30.0	50.0	100	
Prepare income tax and other government reports.	N	0	0	1	2	7	10	1.4
	%	0.0	0.0	10.0	20.0	70.0	100	
Keep annual depreciation schedule.	N	0	0	0	1	9	10	1.1
	%	0.0	0.0	0.0	10.0	90.0	100	
Keep customer credit records.	N	1	0	2	1	6	10	1.9
	%	10.0	0.0	20.0	10.0	60.0	100	
Use adding machine and/or other tabulation devices in balancing accounts.	N	6	0	0	0	4	10	3.4
	%	60.0	0.0	0.0	0.0	40.0	100	
Post sales on tabulation sheets by variety (to predict future demand).	N	3	1	0	0	6	10	2.5
	%	30.0	10.0	0.0	0.0	60.0	100	
Inventory								
Keep current inventory of plants and supplies for sale.	N	4	5	0	0	1	10	4.1
	%	40.0	50.0	0.0	0.0	10.0	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Check received merchandise against invoice listings.	N	5	4	1	0	0	10	4.4
	%	50.0	40.0	10.0	0.0	0.0	100	
Check invoices for math errors.	N	4	1	0	0	5	10	2.9
	%	40.0	10.0	0.0	0.0	50.0	100	
Take annual inventory for tax purposes.	N	0	0	0	7	3	10	1.7
	%	0.0	0.0	0.0	70.0	30.0	100	
Store received plants and other merchandise.	N	4	3	1	0	2	10	3.7
	%	40.0	30.0	10.0	0.0	20.0	100	
Arrange for transportation of materials purchased.	N	3	3	0	1	3	10	3.2
	%	30.0	30.0	0.0	10.0	30.0	100	
Order replacement and/or new plants and supplies for sale.	N	2	3	4	0	1	10	3.5
	%	20.0	30.0	40.0	0.0	10.0	100	
Maintenance								
Keep work, storage, and delivery areas neat and clean.	N	9	0	0	0	1	10	4.6
	%	90.0	0.0	0.0	0.0	10.0	100	
Clean and sharpen hand tools.	N	0	3	2	0	5	10	2.3
	%	0.0	30.0	20.0	0.0	50.0	100	
Perform light maintenance of business vehicle or tractor - oil level, tire pressure, battery and radiator water level.	N	1	0	1	0	8	10	1.6
	%	10.0	0.0	10.0	0.0	80.0	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Repair storage areas.	N	0	1	2	0	7	10	1.7
	%	0.0	10.0	20.0	0.0	70.0	100	
Paint storage areas.	N	0	0	2	0	8	10	1.4
	%	0.0	0.0	20.0	0.0	80.0	100	
Order repair parts for vehicles and/or other equipment.	N	0	2	2	1	5	10	2.1
	%	0.0	20.0	20.0	10.0	50.0	100	
Water and care for plants in storage.	N	1	2	1	0	6	10	2.2
	%	10.0	20.0	10.0	0.0	60.0	100	
Care for common cut flowers.	N	4	0	1	0	5	10	2.8
	%	40.0	0.0	10.0	0.0	50.0	100	
Management								
Report and pay federal, state, and local taxes.	N	0	0	2	3	5	10	1.7
	%	0.0	0.0	20.0	30.0	50.0	100	
Understand and comply with business laws.	N	4	1	2	0	3	10	3.3
	%	40.0	10.0	20.0	0.0	30.0	100	
Administer social security and other employee benefit programs.	N	1	0	3	0	6	10	2.0
	%	10.0	0.0	30.0	0.0	60.0	100	
Identify labor needs.	N	3	3	0	2	2	10	3.3
	%	30.0	30.0	0.0	20.0	20.0	100	
Recruit employees.	N	0	1	2	3	4	10	2.0
	%	0.0	10.0	20.0	30.0	40.0	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Interview and select employees.	N	0	1	2	3	4	10	2.0
	%	0.0	10.0	20.0	30.0	40.0	100	
Designate employee work assignments.	N	8	0	0	0	2	10	4.2
	%	80.0	0.0	0.0	0.0	20.0	100	
Supervise employees.	N	8	0	0	0	2	10	4.2
	%	80.0	0.0	0.0	0.0	20.0	100	
Train new employees.	N	5	1	2	1	1	10	3.8
	%	50.0	10.0	20.0	10.0	10.0	100	
Evaluate employee performance.	N	5	2	1	0	2	10	3.8
	%	50.0	20.0	10.0	0.0	20.0	100	
Perform personnel actions such as promoting or firing.	N	2	0	2	2	4	10	2.4
	%	20.0	0.0	20.0	20.0	40.0	100	
Establish employee wages, hours, and working conditions.	N	3	0	2	1	4	10	2.7
	%	30.0	0.0	20.0	10.0	40.0	100	
Determine business credit needs.	N	2	1	2	1	4	10	2.6
	%	20.0	10.0	20.0	10.0	40.0	100	
Locate sources of, and secure credit.	N	2	1	1	1	5	10	2.4
	%	20.0	10.0	10.0	10.0	50.0	100	
Determine need for, and purchase comprehensive business insurance.	N	0	0	0	3	7	10	1.3
	%	0.0	0.0	0.0	30.0	70.0	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Select and purchase equipment and expendables not for sale.	N	1	2	2	1	4	10	2.5
	%	10.0	20.0	20.0	10.0	40.0	100	
Determine kinds and amounts of flowers and plants to stock.	N	5	1	1	0	3	10	3.5
	%	50.0	10.0	10.0	0.0	30.0	100	
Identify and select producers and suppliers of flowers, plants and materials.	N	5	1	2	0	2	10	3.7
	%	50.0	10.0	20.0	0.0	20.0	100	
Establish and enforce safety regulations.	N	4	2	1	0	3	10	3.4
	%	40.0	20.0	10.0	0.0	30.0	100	
Allocate monies in preparing working budget.	N	2	1	1	1	5	10	2.4
	%	20.0	10.0	10.0	10.0	50.0	100	
Analyze the business enterprises on cost and return basis.	N	2	2	2	0	4	10	2.8
	%	20.0	20.0	20.0	0.0	40.0	100	
Participate in horticulture trade organizations.	N	1	0	1	2	6	10	1.8
	%	10.0	0.0	10.0	20.0	60.0	100	
Plan business advertising.	N	2	0	1	3	4	10	2.3
	%	20.0	0.0	10.0	30.0	40.0	100	
Negotiate sales contracts.	N	1	1	2	0	6	10	2.1
	%	10.0	10.0	20.0	0.0	60.0	100	
Develop relationships with buyers or get new markets and secure sales agreement.	N	1	1	3	0	5	10	2.3
	%	10.0	10.0	30.0	0.0	50.0	100	

Table 26

Frequency of Performance of Competencies
by
Wholesale Florist Labor Employees

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Sales								
Describe to customers the purposes and qualities of merchandise for sale.	N	3	4	2	0	5	14	3.0
	%	21.4	28.6	14.3	0.0	35.7	100	
Identify customer needs and wants.	N	3	4	0	0	7	14	2.7
	%	21.4	28.6	0.0	0.0	50.0	100	
Take orders for sales by telephone.	N	2	4	1	1	6	14	2.6
	%	14.3	28.6	7.1	7.1	42.9	100	
Follow-up sales to determine customer satisfaction.	N	1	2	2	1	8	14	2.1
	%	7.1	14.3	14.3	7.1	57.1	100	
Make cost estimates on customer orders.	N	0	1	1	0	12	14	1.4
	%	0.0	7.1	7.1	0.0	85.7	100	
Identify horticultural plants.	N	1	0	1	1	11	14	1.5
	%	7.1	0.0	7.1	7.1	78.6	100	
Solicit sales by telephone.	N	1	4	0	0	9	14	2.1
	%	7.1	28.6	0.0	0.0	64.3	100	
Use effective interpersonal relationships in dealing with customers.	N	7	1	1	0	5	14	3.4
	%	50.0	7.1	7.1	0.0	35.7	100	
Prepare advertising materials.	N	1	0	2	1	10	14	1.6
	%	7.1	0.0	14.3	7.1	71.4	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Use supplier advertising materials.	N	1	0	3	2	8	14	1.9
	%	7.1	0.0	21.4	14.3	57.1	100	
Use various types of advertising such as mail, radio, and newspaper ads.	N	0	1	2	0	11	14	1.5
	%	0.0	7.1	14.3	0.0	78.6	100	
Use credit systems of payment.	N	4	1	0	0	9	14	2.4
	%	28.6	7.1	0.0	0.0	64.3	100	
Send plant and flower care instructions to retailers.	N	1	1	0	2	10	14	1.6
	%	7.1	7.1	0.0	14.3	71.4	100	
Verify customer addresses using directories.	N	3	1	1	0	9	14	2.2
	%	21.4	7.1	7.1	0.0	64.3	100	
Write up customer orders for packing personnel.	N	2	4	0	1	7	14	2.5
	%	14.3	28.6	0.0	7.1	50.0	100	
Make up customer orders.	N	3	3	1	0	7	14	2.6
	%	21.4	21.4	7.1	0.0	50.0	100	
Presort incoming plant materials.	N	0	2	1	0	11	14	1.6
	%	0.0	14.3	7.1	0.0	78.6	100	
Check received goods for spoilage and damage.	N	3	3	1	0	7	14	2.6
	%	21.4	21.4	7.1	0.0	50.0	100	
Quality sort prior to shipment.	N	4	1	1	0	8	14	2.5
	%	28.6	7.1	7.1	0.0	57.1	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Package orders for shipment.	N	3	2	1	0	8	14	2.4
	%	21.4	14.3	7.1	0.0	57.1	100	
Make out bus tickets, labels, and invoices for shipping.	N	5	2	0	0	7	14	2.9
	%	35.7	14.3	0.0	0.0	50.0	100	
Arrange transportation for shipments sold.	N	2	1	0	1	10	14	1.9
	%	14.3	7.1	0.0	7.1	71.4	100	
Check storage temperatures of refrigeration units.	N	0	2	0	1	11	14	1.5
	%	0.0	14.3	0.0	7.1	78.6	100	
Records								
Keep records of receipts and expenses.	N	5	1	0	0	8	14	2.6
	%	35.7	7.1	0.0	0.0	57.1	100	
Make out and mail bills to collect accounts due.	N	3	0	1	0	10	14	2.0
	%	21.4	0.0	7.1	0.0	71.4	100	
Check credit references of customers.	N	3	1	0	0	10	14	2.1
	%	21.4	7.1	0.0	0.0	71.4	100	
Perform filing tasks.	N	4	1	0	0	8	14	2.5
	%	28.6	7.1	0.0	0.0	57.1	100	
Perform typing and mailing tasks.	N	4	1	2	0	7	14	2.6
	%	28.6	7.1	14.3	0.0	50.0	100	
Keep employee work records.	N	2	2	0	0	10	14	2.0
	%	14.3	14.3	0.0	0.0	71.4	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Prepare employee payroll.	N	2	1	0	1	10	14	1.9
	%	14.3	7.1	0.0	7.1	71.4	100	
Pay accounts payable.	N	3	0	1	0	10	14	2.0
	%	21.4	0.0	7.1	0.0	71.4	100	
Assist in records audit.	N	2	0	2	1	9	14	1.9
	%	14.3	0.0	14.3	7.1	64.3	100	
Prepare income tax and other government reports.	N	1	1	2	0	10	14	1.8
	%	7.1	7.1	14.3	0.0	71.4	100	
Keep annual depreciation schedule.	N	0	0	0	2	12	14	1.1
	%	0.0	0.0	0.0	14.3	85.7	100	
Keep customer credit records.	N	4	1	0	0	9	14	2.4
	%	28.6	7.1	0.0	0.0	64.3	100	
Use adding machine and/or other tabulation devices in balancing accounts.	N	6	0	0	0	8	14	2.7
	%	42.9	0.0	0.0	0.0	57.1	100	
Post sales on tabulation sheets by variety (to predict future demand).	N	1	2	1	0	10	14	1.9
	%	7.1	14.3	7.1	0.0	71.4	100	
Inventory								
Keep current inventory of plants and supplies for sale.	N	2	3	1	0	8	14	2.4
	%	14.3	21.4	7.1	0.0	57.1	100	
Check received merchandise against invoice listings.	N	2	2	2	0	8	14	2.3
	%	14.3	14.3	14.3	0.0	57.1	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Check invoices for math errors.	N	6	1	1	0	6	14	3.1
	%	42.9	7.1	7.1	0.0	42.9	100	
Take annual inventory for tax purposes.	N	1	0	0	4	9	14	1.6
	%	7.1	0.0	0.0	28.6	64.3	100	
Store received plants and other merchandise.	N	5	1	2	0	6	14	2.9
	%	35.7	7.1	14.3	0.0	42.9	100	
Arrange for transportation of materials purchased.	N	1	0	0	0	13	14	1.3
	%	7.1	0.0	0.0	0.0	92.9	100	
Order replacement and/or new plants and supplies for sale.	N	0	1	3	0	10	14	1.6
	%	0.0	7.1	21.4	0.0	71.4	100	
Maintenance								
Keep work, storage, and delivery areas neat and clean.	N	5	3	2	0	4	14	3.4
	%	35.7	21.4	14.3	0.0	28.6	100	
Clean and sharpen hand tools.	N	2	1	4	0	7	14	2.4
	%	14.3	7.1	28.6	0.0	50.0	100	
Perform light maintenance of business vehicle or tractor - oil level, tire pressure, battery and radiator water levels.	N	4	0	1	0	9	14	2.3
	%	28.6	0.0	7.1	0.0	64.3	100	
Repair storage areas.	N	0	0	2	2	10	14	
	%	0.0	0.0	14.3	14.3	71.4	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Paint storage areas.	N	0	0	2	1	11	14	1.4
	%	0.0	0.0	14.3	7.1	78.6	100	
Order repair parts for vehicles and/or other equipment.	N	0	0	2	1	11	14	1.4
	%	0.0	0.0	14.3	7.1	78.6	100	
Water and care for plants in storage.	N	4	0	1	0	9	14	2.3
	%	28.6	0.0	7.1	0.0	64.3	100	
Care for common cut flowers.	N	6	1	0	0	7	14	2.9
	%	42.9	7.1	0.0	0.0	50.0	100	
Management								
Report and pay federal, state, and local taxes.	N	0	0	4	0	10	14	1.6
	%	0.0	0.0	28.6	0.0	71.4	100	
Understand and comply with business laws.	N	4	0	0	0	10	14	2.1
	%	28.6	0.0	0.0	0.0	71.4	100	
Administer social security and other employee benefit programs.	N	1	1	0	1	11	14	1.6
	%	7.1	7.1	0.0	7.1	78.6	100	
Identify labor needs.	N	0	0	2	1	11	14	1.4
	%	0.0	0.0	14.3	7.1	78.6	100	
Recruit employees.	N	0	0	1	1	12	14	1.2
	%	0.0	0.0	7.1	7.1	85.7	100	
Interview and select employees.	N	0	0	1	1	12	14	1.2
	%	0.0	0.0	7.1	7.1	85.7	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Designate employee work assignments.	N	2	1	0	1	10	14	1.9
	%	14.3	7.1	0.0	7.1	71.4	100	
Supervise employees.	N	2	1	0	1	10	14	1.9
	%	14.3	7.1	0.0	7.1	71.4	100	
Train new employees.	N	3	1	2	0	8	14	2.4
	%	21.4	7.1	14.3	0.0	57.1	100	
Evaluate employee performance.	N	1	2	1	0	10	14	1.9
	%	7.1	14.3	7.1	0.0	71.4	100	
Perform personnel actions such as promoting or firing.	N	0	0	2	0	12	14	1.3
	%	0.0	0.0	14.3	0.0	85.7	100	
Establish employee wages, hours, and working conditions.	N	0	0	2	0	12	14	1.3
	%	0.0	0.0	14.3	0.0	85.7	100	
Determine business credit needs.	N	0	0	2	0	12	14	1.3
	%	0.0	0.0	14.3	0.0	85.7	100	
Locate sources of, and secure credit.	N	0	0	1	1	12	14	1.2
	%	0.0	0.0	7.1	7.1	85.7	100	
Determine need for, and purchase comprehensive business insurance.	N	0	0	0	1	13	14	1.1
	%	0.0	0.0	0.0	7.1	92.9	100	
Select and purchase equipment and expendables not for sale.	N	0	0	1	4	9	14	1.4
	%	0.0	0.0	7.1	28.6	64.3	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Determine kinds and amounts of flowers and plants to stock.	N	0	0	0	2	12	14	1.1
	%	0.0	0.0	0.0	14.3	85.7	100	
Identify and select producers and suppliers of flowers, plants and materials.	N	0	0	1	1	12	14	1.2
	%	0.0	0.0	7.1	7.1	85.7	100	
Establish and enforce safety regulations.	N	1	0	2	1	10	14	1.6
	%	7.1	0.0	14.3	7.1	71.4	100	
Allocate monies in preparing working budget.	N	0	0	2	0	12	14	1.3
	%	0.0	0.0	14.3	0.0	85.7	100	
Analyze the business enterprises on cost and return basis.	N	0	0	1	1	12	14	1.2
	%	0.0	0.0	7.1	7.1	85.7	100	
Participate in horticulture trade organizations.	N	0	0	0	2	12	14	1.1
	%	0.0	0.0	0.0	14.3	85.7	100	
Plan business advertising.	N	0	1	0	0	13	14	1.2
	%	0.0	7.1	0.0	0.0	92.9	100	
Negotiate sales contracts.	N	0	0	0	0	14	14	1.0
	%	0.0	0.0	0.0	0.0	100	100	
Develop relationships with buyers or get new markets and secure sales agreement.	N	0	1	0	1	12	14	1.3
	%	0.0	7.1	0.0	7.1	85.7	100	

Table 27

Competencies Most Frequently Performed

by

All Wholesale Florist Employees

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Keep work, storage, and delivery areas neat and clean.	N	14	3	2	0	5	24	3.9
	%	53.3	12.5	8.3	0.0	20.8	100	
Use effective interpersonal relationships in dealing with customers.	N	14	2	3	0	5	24	3.8
	%	58.3	8.3	12.5	0.0	20.8	100	
Describe to customers the purposes and qualities of merchandise for sale.	N	11	5	3	0	5	24	3.7
	%	45.8	20.8	12.5	0.0	20.8	100	
Identify customer needs and wants.	N	12	5	0	0	7	24	3.6
	%	50.0	20.8	0.0	0.0	29.2	100	
Take orders for sales by telephone.	N	10	5	2	1	6	24	3.5
	%	41.7	20.8	8.3	4.2	25.0	100	
Write up customer orders for packing personnel.	N	11	4	1	1	7	24	3.5
	%	45.8	16.7	4.2	4.2	29.2	100	
Make up customer orders.	N	11	3	3	0	7	24	3.5
	%	45.8	12.5	12.5	0.0	29.2	100	
Check received goods for spoilage and damage.	N	10	6	1	0	7	24	3.5
	%	41.7	25.0	4.2	0.0	29.2	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Quality sort prior to shipment.	N	14	1	1	0	8	24	3.5
	%	58.3	4.2	4.2	0.0	33.3	100	
Package orders for shipment.	N	11	2	3	0	8	24	3.3
	%	45.8	8.3	12.5	0.0	33.3	100	
Make out bus tickets, labels, and invoices for shipping,	N	11	3	1	0	9	24	3.3
	%	45.8	12.5	4.2	0.0	37.5	100	
Store received plants and other merchandise.	N	9	4	3	0	8	24	3.3
	%	37.5	16.7	12.5	0.0	33.3	100	
Check received merchandise against invoice listings.	N	7	6	3	0	8	24	3.2
	%	29.2	25.0	12.5	0.0	33.3	100	
Keep current inventory of plants and supplies for sale.	N	6	8	1	0	9	24	3.1
	%	25.0	33.3	4.2	0.0	37.5	100	
Check invoices for math errors.	N	10	2	1	0	11	24	3.0
	%	41.7	8.3	4.2	0.0	45.8	100	
Solicit sales by telephone.	N	7	6	1	0	10	24	3.0
	%	29.2	25.0	4.2	0.0	41.7	100	
Use credit systems of payment.	N	11	1	1	0	11	24	3.0
	%	45.8	4.2	4.2	0.0	45.8	100	
Train new employees.	N	8	2	4	1	9	24	3.0
	%	33.3	8.3	16.7	4.2	37.5	100	

were made from a review of data presented in Table 28. It was interesting to note that these employees performed few tasks in preparing a seedbed; propagating plants; controlling diseases, pests, and weeds; harvesting and storing plants.

An interesting observation was made when analyzing the extent of performance of competencies by nursery production labor employees. It was expected that these employees would be most involved in carrying out tasks associated with the production of nursery stock. It was concluded by the investigators that these people performed those tasks more extensively than reported. Seasonality of their work and the scale provided for them to respond to most likely influenced their responses.

Data in Table 29 reveal those competencies performed by all nursery production employees once a month or more. It was observed that only two competencies appeared in the table, namely keeping the work, storage, and delivery areas neat and clean and watering nursery stock.

Conclusions and Implications

The purpose of this study was to identify, describe, and categorize those mental and physical abilities and skills needed by workers in horticultural occupations. The study identified, described, and categorized these abilities for workers in arborist services, farm and garden supply centers, golf course management, greenhouse production, landscape services, park and highway management, retail florists, wholesale florists, and nursery production. The procedures used to conduct the study proved their worthiness in that useful data was provided upon which conclusions could be drawn relative to each of the objectives stated earlier in this publication.

The findings of this investigation suggest several implications for educators in planning and implementing relevant and meaningful programs of horticulture at the secondary and post-secondary levels. A few of the more important are discussed in the following paragraphs.

One can conclude from the responses of the study participants that work in each of the horticultural industries studied is very seasonal in nature. As these seasons develop in the work year of the employee, employees are required to draw on different skills and abilities to perform job tasks characteristic of each season's work activities. Those competencies that tended to be performed in all seasons were, in the main, in the broad areas of business management, sales, and inventory control. It was further observed that competencies requiring knowledges and skills in agriculture

Table 28

Frequency of Performance of Competencies

by

Nursery Production Management and Sales Employees

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Preparation of the Seedbed								
Select nursery planting site.	N	2	5	1	9	13	30	2.1
	%	6.7	16.7	3.3	30.0	43.3	100	
Take soil samples.	N	0	1	2	5	22	30	1.4
	%	0.0	3.3	6.7	16.7	73.3	100	
Lay out space requirements for various varieties.	N	4	3	3	7	13	30	2.3
	%	13.3	10.0	10.0	23.3	43.3	100	
Determine fertilizer requirements according to soil tests.	N	1	2	1	4	22	30	1.5
	%	3.3	6.7	3.3	13.3	73.3	100	
Add chemicals to control weeds and/or soil insects.	N	2	2	2	7	17	30	1.8
	%	6.7	6.7	6.7	23.3	56.7	100	
Operate machinery to till soil and distribute lime and fertilizer.	N	1	1	5	5	18	30	1.7
	%	3.3	3.3	16.7	16.7	60.0	100	
Dig holes for trees and shrubs (with shovel or power auger).	N	3	2	3	4	18	30	1.9
	%	10.0	6.7	10.0	13.3	60.0	100	
Haul and spread peat moss and other plant materials.	N	1	1	4	4	20	30	1.6
	%	3.3	3.3	13.3	13.3	66.7	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Plant cover crops.	N	1	0	0	9	20	30	1.4
	%	3.3	0.0	0.0	30.0	66.7	100	
Propagation								
Select time to plant annual and seasonal plants.	N	2	2	2	9	15	30	1.9
	%	6.7	6.7	6.7	30.0	50.0	100	
Select seed and transplant stock.	N	2	1	2	11	14	30	1.9
	%	6.7	3.3	6.7	36.7	46.7	100	
Clean and treat seed.	N	0	1	0	7	22	30	1.3
	%	0.0	3.3	0.0	23.3	73.3	100	
Plant seed.	N	2	1	0	6	21	30	1.6
	%	6.7	3.3	0.0	20.0	70.0	100	
Transplant seedlings to the field.	N	1	2	0	8	19	30	1.6
	%	3.3	6.7	0.0	26.7	63.3	100	
Plant seed for nursery stock.	N	1	1	1	4	23	30	1.4
	%	3.3	3.3	3.3	13.3	76.6	100	
Label planted rows or areas.	N	1	0	3	7	19	30	1.6
	%	3.3	0.0	10.0	23.3	63.3	100	
Culture of Plants in the Nursery								
Water nursery stock.	N	11	4	0	1	14	30	2.9
	%	36.7	13.3	0.0	3.3	46.7	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Prune and trim plants.	N	5	3	3	7	12	30	2.4
	%	16.7	10.0	10.0	23.3	40.0	100	
Test soil.	N	1	1	3	7	18	30	1.7
	%	3.3	3.3	10.0	23.3	60.0	100	
Care for plants in containers.	N	7	5	1	1	16	30	2.5
	%	23.3	16.7	3.3	3.3	53.3	100	
Thin and space nursery stock.	N	1	1	2	8	18	30	1.6
	%	3.3	3.3	6.7	26.7	60.0	100	
Fertilize nursery crops according to soil test.	N	2	0	2	5	21	30	1.6
	%	6.7	0.0	6.7	16.7	70.0	100	
Disease, Pest, and Weed Control								
Cultivate to eliminate weeds.	N	3	5	2	4	16	30	2.2
	%	10.0	16.7	6.7	.3.3	53.3	100	
Provide chemical weed control.	N	2	1	3	8	16	30	1.8
	%	6.7	3.3	10.0	26.7	53.3	100	
Lay plastic to prevent weeds.	N	2	1	0	5	22	30	1.5
	%	6.7	3.3	0.0	16.7	73.3	100	
Set traps and poisons for pests.	N	1	0	2	9	18	30	1.6
	%	3.3	0.0	6.7	30.0	60.0	100	
Shoot pests.	N	0	1	1	1	27	30	1.2
	%	0.0	3.3	3.3	3.3	90.0	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Spray crops.	N	0	1	5	2	22	30	1.5
	%	0.0	3.3	16.7	6.7	73.3	100	
Identify and remove diseased and dead plants.	N	3	3	9	4	11	30	2.4
	%	10.0	10.0	30.0	13.3	36.7	100	
Identify common insect and disease pests on ornamental shrubs.	N	7	5	4	3	11	30	2.8
	%	23.3	16.7	13.3	10.0	36.7	100	
Harvesting								
Dig up trees and shrubbery.	N	3	1	2	9	15	30	1.9
	%	10.0	3.3	6.7	30.0	50.0	100	
Ball and burlap roots of trees and shrubs.	N	1	0	3	3	23	30	1.4
	%	3.3	0.0	10.0	10.0	76.7	100	
Cut flowers and plants.	N	2	0	0	6	22	30	1.5
	%	6.7	0.0	0.0	20.0	73.3	100	
Remove plants from beds.	N	0	0	1	11	18	30	1.4
	%	0.0	0.0	3.3	36.7	60.0	100	
Harvest seed.	N	0	1	0	7	22	30	1.3
	%	0.0	3.3	0.0	23.3	73.3	100	
Clean and grade seed.	N	0	1	0	5	24	30	1.3
	%	0.0	3.3	0.0	16.7	80.0	100	
Label harvested plants.	N	2	2	1	6	19	30	1.7
	%	6.7	6.7	3.3	20.0	63.3	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Pot plants for retail sale.	N	2	0	4	5	19	30	1.7
	%	6.7	0.0	13.3	16.7	63.3	100	
Storage								
Bunch and pack plants.	N	1	2	1	7	19	30	1.6
	%	3.3	6.7	3.3	23.3	63.3	100	
Deliver plants to warehouse storage.	N	2	1	0	4	23	30	1.5
	%	6.7	3.3	0.0	13.3	76.7	100	
Label storage bins and bags.	N	1	1	0	13	15	30	1.7
	%	3.3	3.3	0.0	43.3	50.0	100	
Remove dead or inferior plants.	N	5	2	7	3	13	30	2.4
	%	16.7	6.7	23.3	10.0	43.3	100	
Maintain humidity and temperature requirements in storage facility with fans and heater units.	N	4	3	1	1	21	30	1.9
	%	13.3	10.0	3.3	3.3	70.0	100	
Care for overwintering of container group plant materials.	N	3	1	0	8	18	30	1.8
	%	10.0	3.3	0.0	26.7	60.0	100	
Sales								
Describe to customers the purposes and qualities of plants for sale.	N	16	4	1	2	7	30	3.7
	%	53.3	13.3	3.3	6.7	23.3	100	
Identify customer needs and wants.	N	15	3	3	1	8	30	3.5
	%	50.0	10.0	10.0	3.3	26.7	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Take orders for sales by telephone.	N	18	2	0	2	8	30	3.7
	%	60.0	6.7	0.0	6.7	26.7	100	
Follow up sales to determine satisfaction and as a guide for determining next year's plantings.	N	10	1	5	5	9	30	2.9
	%	33.3	3.3	16.7	16.7	30.0	100	
Make cost estimates on customer orders.	N	10	6	1	1	12	30	3.0
	%	33.3	3.3	3.3	3.3	40.0	100	
Identify horticultural plants.	N	11	3	4	1	11	30	3.1
	%	36.7	10.0	13.3	3.3	36.7	100	
Solicit sales by telephone.	N	9	3	0	4	14	30	2.6
	%	30.0	10.0	0.0	13.3	46.7	100	
Use effective interpersonal relationships in dealing with customers.	N	15	2	1	3	9	30	3.4
	%	50.0	6.7	3.3	10.0	30.0	100	
Prepare advertising materials.	N	3	4	6	4	13	30	2.3
	%	10.0	13.3	20.0	13.3	43.3	100	
Use supplier advertising materials including catalogs.	N	10	5	2	4	9	30	3.1
	%	33.3	16.7	6.7	13.3	30.0	100	
Write up customer orders.	N	18	2	1	1	8	30	3.7
	%	60.0	6.7	3.3	3.3	26.7	100	
Prepare advertising materials including catalogs.	N	4	4	2	5	15	30	2.2
	%	13.3	13.3	6.7	16.7	50.0	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Use various types of advertising such as industry publications and mailing lists.	N	6	2	3	7	12	30	2.4
	%	20.0	6.7	10.0	23.3	40.0	100	
Advise customers on environmental requirements and shelf life of plants.	N	13	3	2	3	9	30	3.3
	%	43.3	10.0	6.7	10.0	30.0	100	
Send plant care instructions to retailers.	N	3	3	0	4	20	30	1.8
	%	10.0	10.0	0.0	13.3	66.7	100	
Records								
Keep records of receipts and expenses.	N	11	4	1	1	13	30	3.0
	%	36.7	13.3	3.3	3.3	43.3	100	
Make out and mail bills to collect accounts due.	N	4	2	4	2	18	30	2.1
	%	13.3	6.7	13.3	6.7	60.0	100	
Check credit references of customers.	N	4	3	3	3	17	30	2.1
	%	13.3	10.0	10.0	10.0	56.7	100	
Perform filing tasks.	N	7	5	2	2	14	30	2.6
	%	23.3	16.7	6.7	6.7	46.7	100	
Perform typing and mailing tasks.	N	6	5	1	1	17	30	2.4
	%	20.0	16.7	3.3	3.3	56.7	100	
Keep employee work records.	N	13	3	2	1	11	30	3.2
	%	43.3	10.0	6.7	3.3	36.7	100	
Prepare employee payroll.	N	3	6	1	2	18	30	
	%	10.0	20.0	3.3	6.7	60.0	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Pay accounts payable.	N	2	4	3	1	20	30	1.9
	%	6.7	13.3	10.0	3.3	66.7	100	
Assist in records audit.	N	2	0	3	8	17	30	1.7
	%	6.7	0.0	10.0	26.7	56.7	100	
Prepare income tax and other government reports.	N	0	1	4	2	23	30	1.4
	%	0.0	3.3	13.3	6.7	76.7	100	
Keep annual depreciation schedule.	N	2	0	3	4	21	30	1.6
	%	6.7	0.0	10.0	13.3	70.0	100	
Keep customer credit records.	N	5	1	2	2	20	30	2.0
	%	16.7	3.3	6.7	6.7	66.7	100	
Use adding machine and/or other tabulation devices in balancing accounts.	N	9	4	2	1	14	30	2.8
	%	30.0	13.3	6.7	3.3	46.7	100	
Keep nursery crop production records.	N	6	2	7	2	13	30	2.5
	%	20.0	6.7	23.3	6.7	43.3	100	
Calculate sales prices based on cost plus a percentage mark-up.	N	4	6	3	2	15	30	2.4
	%	13.3	20.0	10.0	6.7	50.0	100	
Processing and Shipment								
Quality sort prior to shipment.	N	6	4	2	0	18	30	2.3
	%	20.0	13.3	6.7	0.0	60.0	100	
Make out shipping labels and invoices.	N	7	1	1	3	18	30	
	%	23.3	3.3	3.3	10.0	60.0	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Package orders for shipment.	N	5	1	2	4	18	30	2.0
	%	16.7	3.3	6.7	13.3	60.0	100	
Arrange transportation for shipment of plant materials.	N	9	1	2	3	15	30	2.5
	%	30.0	3.3	6.7	10.0	50.0	100	
Deliver plant materials to wholesaler and/or retailer.	N	3	1	1	3	22	30	1.7
	%	10.0	3.3	3.3	10.0	73.3	100	
Inventory								
Keep current inventory of plants and supplies for sale.	N	7	3	5	5	10	30	2.7
	%	23.3	10.0	16.7	16.7	33.3	100	
Check received merchandise against invoice listings.	N	8	5	6	3	8	30	3.1
	%	26.7	16.7	20.0	10.0	26.7	100	
Check invoices for math errors.	N	6	4	5	1	14	30	2.6
	%	20.0	13.3	16.7	3.3	46.7	100	
Take annual inventory for tax purposes.	N	3	0	0	12	15	30	1.8
	%	10.0	0.0	0.0	40.0	50.0	100	
Store received materials and supplies.	N	7	4	3	4	12	30	2.7
	%	23.3	13.3	10.0	13.3	40.0	100	
Arrange for transportation of plant materials and supplies.	N	7	4	2	3	14	30	2.6
	%	23.3	13.3	6.7	10.0	46.7	100	
Order seed, fertilizer, and/or plant materials.	N	4	6	7	3	10	30	2.7
	%	13.3	20.0	23.3	10.0	33.3	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Keep current inventory of repair parts, fertilizer, seed, and other supplies.	N	6	4	6	3	11	30	2.7
	%	20.0	13.3	20.0	10.0	36.7	100	
Maintenance								
Keep work, storage, and delivery areas neat and clean.	N	12	2	2	2	12	30	3.0
	%	40.0	6.7	6.7	6.7	40.0	100	
Clean and sharpen hand tools.	N	9	5	1	4	11	30	2.9
	%	30.0	16.7	3.3	13.3	36.7	100	
Perform light maintenance of business vehicle or tractor - oil level, tire pressure, battery and radiator water levels.	N	8	0	4	0	18	30	2.3
	%	26.7	0.0	13.3	0.0	60.0	100	
Perform minor tune-up of business vehicle or tractor by replacement of spark plugs and ignition points.	N	4	0	3	2	21	30	1.8
	%	13.3	0.0	10.0	6.7	70.0	100	
Change oil and grease business vehicle or tractor.	N	5	0	3	3	19	30	2.0
	%	16.7	0.0	10.0	10.0	63.3	100	
Repair storage bins and equipment storage buildings.	N	1	0	3	10	16	30	1.7
	%	3.3	0.0	10.0	33.3	53.3	100	
Perform electrical work on light switches and extension cords.	N	2	1	1	7	19	30	1.7
	%	6.7	3.3	3.3	23.3	63.3	100	
Paint nursery house and storage buildings.	N	1	0	0	10	19	30	1.5
	%	3.3	0.0	0.0	33.3	63.3	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Maintain and repair water valves, spigots, thermostats, and pumps.	N	1	1	1	4	23	30	1.4
	%	3.3	3.3	3.3	13.3	76.7	100	
Clean and oil electric motors.	N	3	0	3	4	20	30	1.7
	%	10.0	0.0	10.0	13.3	66.7	100	
Order repair parts for vehicles and/or other equipment.	N	4	2	7	3	14	30	2.3
	%	13.3	6.7	23.3	10.0	46.7	100	
Clean and repair dusters and sprayers.	N	3	3	3	2	19	30	2.0
	%	10.0	10.0	10.0	6.7	63.3	100	
Maintain and repair small gas engines (e.g. lawn mower, rototiller).	N	1	0	2	3	24	30	1.4
	%	3.3	0.0	6.7	10.0	80.0	100	
Maintain and install sprinkler heads, pipe nozzles, and other irrigation equipment.	N	6	0	2	3	19	30	2.0
	%	20.0	0.0	6.7	10.0	63.3	100	
Service heating pots and boilers.	N	0	0	0	1	29	30	1.0
	%	0.0	0.0	0.0	3.3	96.7	100	
Maintain and repair power tillers and cultivators.	N	3	1	3	2	21	30	1.8
	%	10.0	3.3	10.0	6.7	70.0	100	
Management								
Report and pay federal, state, and local taxes.	N	0	3	6	0	21	30	1.7
	%	0.0	10.0	20.0	0.0	70.0	100	
Understand and comply with business laws.	N	17	4	3	0	6	30	3.9
	%	56.7	13.3	10.0	0.0	20.0	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Administer social security and other employee benefit programs.	N	0	6	4	1	19	30	1.9
	%	0.0	20.0	13.3	3.3	63.3	100	
Identify labor needs.	N	16	4	3	2	5	30	3.8
	%	53.3	13.3	10.0	6.7	16.7	100	
Recruit employees.	N	9	1	8	6	6	30	3.0
	%	30.0	3.3	26.7	20.0	20.0	100	
Interview and select employees.	N	9	1	8	6	6	30	3.0
	%	30.0	3.3	26.7	20.0	20.0	100	
Designate employee work assignments.	N	20	1	4	1	4	30	4.1
	%	66.7	313	13.3	3.3	13.3	100	
Supervise employees.	N	22	2	1	1	4	30	4.2
	%	73.3	6.7	3.3	3.3	13.3	100	
Train new employees.	N	14	3	4	5	4	30	3.6
	%	46.7	10.0	13.3	16.7	13.3	100	
Evaluate employee performance.	N	13	5	4	4	4	30	3.6
	%	43.3	16.7	13.3	13.3	13.3	100	
Perform personnel actions such as promoting or firing.	N	10	2	9	3	6	30	3.2
	%	33.3	6.7	30.0	10.0	20.0	100	
Establish employee wages, hours, and working conditions.	N	8	3	9	5	5	30	3.1
	%	26.7	10.0	30.0	16.7	16.7	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Determine business credit needs.	N	5	1	7	2	15	30	2.3
	%	16.7	3.3	23.3	6.7	50.0	100	
Locate sources of, and secure credit.	N	2	0	2	9	17	30	1.7
	%	6.7	0.0	6.7	30.0	56.7	100	
Determine need for, and purchase comprehensive business insurance.	N	1	0	3	9	17	30	1.6
	%	3.3	0.0	10.0	30.0	56.7	100	
Select and purchase plants, fertilizer, and equipment.	N	4	8	4	5	9	30	2.8
	%	13.3	26.7	13.3	16.7	30.0	100	
Determine kinds and amounts of flowers and plants to stock.	N	5	4	2	7	12	30	2.4
	%	16.7	13.3	6.7	23.3	40.0	100	
Identify and select producers and suppliers of flowers, plants, and materials.	N	3	3	6	9	9	30	2.4
	%	10.0	10.0	20.0	30.0	30.0	100	
Establish and enforce safety regulations.	N	15	2	2	5	6	30	3.5
	%	50.0	6.7	6.7	16.7	20.0	100	
Allocate monies in preparing working budget.	N	4	2	4	5	15	30	2.2
	%	13.3	6.7	13.3	16.7	50.0	100	
Analyze the business enterprises on cost and return basis.	N	3	2	2	7	16	30	2.0
	%	10.0	6.7	6.7	23.3	53.3	100	
Participate in horticulture trade organizations.	N	3	2	4	8	13	30	2.1
	%	10.0	6.7	13.3	26.7	43.3	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Plan business advertising.	N	1	4	3	8	14	30	2.0
	%	3.3	13.3	10.0	26.7	46.7	100	
Negotiate sales contracts.	N	5	4	3	2	16	30	2.3
	%	16.7	13.3	10.0	6.7	53.3	100	
Develop relationships with buyers to get new markets and secure sales agreements.	N	4	2	3	4	17	30	2.1
	%	13.3	6.7	10.0	13.3	56.7	100	

Table 29

Frequency of Performance of Competencies

by

Nursery Production Labor Employees

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Preparation of the Seedbed								
Select nursery planting site.	N	1	0	0	2	62	65	1.1
	%	1.5	0.0	0.0	3.1	95.4	100	
Take soil samples.	N	0	0	2	0	63	65	1.1
	%	0.0	0.0	3.1	0.0	96.9	100	
Lay out space requirements for various varieties.	N	2	0	2	7	54	65	1.3
	%	3.1	0.0	3.1	10.8	83.1	100	
Determine fertilizer requirements according to soil tests.	N	1	0	1	1	62	65	1.1
	%	1.5	0.0	1.5	1.5	95.4	100	
Add chemicals to control weeds and/or soil insects.	N	3	3	3	7	49	65	1.5
	%	4.6	5.6	5.6	10.8	75.4	100	
Operate machinery to till soil and distribute lime and fertilizer.	N	5	3	6	5	46	65	1.7
	%	7.7	4.6	9.2	7.7	70.8	100	
Dig holes for trees and shrubs (with shovel or power auger).	N	6	4	7	5	43	65	1.8
	%	9.2	6.2	10.8	7.7	66.2	100	
Haul and spread peat moss and other plant materials.	N	6	3	7	1	48	65	1.7
	%	9.2	4.6	10.8	1.5	73.8	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Plant cover crops.	N	4	3	1	7	50	65	1.5
	%	6.2	4.6	1.5	10.8	76.9	100	
Propagation								
Select time to plant annual and seasonal plants.	N	1	1	1	2	60	65	1.2
	%	1.5	1.5	1.5	3.1	92.3	100	
Select seed and transplant stock.	N	6	3	1	4	51	65	1.6
	%	9.2	4.6	1.5	6.2	78.5	100	
Clean and treat seed.	N	2	1	3	4	55	65	1.3
	%	3.1	1.5	4.6	6.2	84.6	100	
Plant seed.	N	6	6	3	7	43	65	1.8
	%	9.2	9.2	4.6	10.8	66.2	100	
Transplant seedlings to the field.	N	14	5	1	9	36	65	2.3
	%	21.5	7.7	1.5	13.8	55.4	100	
Plant seed for nursery stock.	N	7	6	1	5	46	65	1.8
	%	10.8	9.2	1.5	7.7	70.8	100	
Label planted rows or areas.	N	7	4	0	11	43	65	1.8
	%	10.8	6.2	0.0	16.9	66.2	100	
Culture of Plants in the Nursery								
Water nursery stock.	N	25	8	5	2	25	65	3.1
	%	38.5	12.3	7.7	3.1	38.5	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Prune and trim plants.	N	17	10	6	7	25	65	2.8
	%	26.2	15.4	9.2	10.8	38.5	100	
Test soil.	N	1	0	0	1	63	65	1.1
	%	1.5	0.0	0.0	1.5	96.9	100	
Care for plants in containers.	N	5	3	4	3	50	65	1.6
	%	7.7	4.6	6.2	4.6	76.9	100	
Thin and space nursery stock.	N	9	3	5	9	39	65	2.0
	%	13.8	4.6	7.7	13.8	60.0	100	
Fertilize nursery crops according to soil test.	N	4	1	1	4	55	65	1.4
	%	6.2	1.5	1.5	6.2	84.6	100	
Disease, Pest, and Weed Control								
Cultivate to eliminate weeds.	N	16	6	3	3	37	65	2.4
	%	24.6	9.2	4.6	4.6	56.9	100	
Provide chemical weed control.	N	5	1	7	6	46	65	1.7
	%	7.7	1.5	10.8	9.2	70.8	100	
Lay plastic to prevent weeds.	N	2	3	3	5	52	65	1.4
	%	3.1	4.6	4.6	7.7	80.0	100	
Set traps and poisons for pests.	N	0	0	0	3	62	65	1.0
	%	0.0	0.0	0.0	4.6	95.4	100	
Shoot pests.	N	0	0	0	5	60	65	1.1
	%	0.0	0.0	0.0	7.7	92.3	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Spray crops.	N	5	2	2	9	47	65	1.6
	%	7.7	3.1	3.1	13.8	72.3	100	
Identify and remove diseased and dead plants.	N	7	6	8	7	37	65	2.1
	%	10.8	9.2	12.3	10.8	56.9	100	
Identify common insect and disease pests on ornamental shrubs.	N	2	4	4	3	52	65	1.5
	%	3.1	6.2	6.2	4.6	80.0	100	
Harvesting								
Dig up trees and shrubbery.	N	15	8	3	17	22	65	2.6
	%	23.1	12.3	4.6	26.2	33.8	100	
Ball and burlap roots of trees and shrubs.	N	6	7	3	4	45	65	1.8
	%	9.2	10.8	4.6	6.2	69.2	100	
Cut flowers and plants.	N	6	4	2	8	45	65	1.7
	%	9.2	6.2	3.1	12.3	69.2	100	
Remove plants from beds.	N	10	12	2	16	25	65	2.5
	%	15.4	18.5	3.1	24.6	38.5	100	
Harvest seed.	N	5	6	5	6	43	65	1.8
	%	7.7	9.2	7.7	9.2	66.2	100	
Clean and grade seed.	N	3	7	4	3	48	65	1.7
	%	4.6	10.8	6.2	4.6	73.8	100	
Label harvested plants.	N	12	6	4	15	28	65	2.4
	%	18.5	9.2	6.2	23.1	43.1	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Pot plants for retail sale.	N	4	7	3	12	39	65	1.8
	%	6.2	10.8	4.6	18.5	60.0	100	
Storage								
Bunch and pack plants.	N	11	7	6	13	28	65	2.4
	%	16.9	10.8	9.2	20.0	43.1	100	
Deliver plants to warehouse storage.	N	10	4	2	15	33	65	2.1
	%	15.6	6.2	3.1	23.4	51.6	100	
Label storage bins and bags.	N	12	3	1	10	39	65	2.1
	%	18.5	4.6	1.5	15.4	60.0	100	
Remove dead or inferior plants.	N	10	2	6	16	31	65	2.1
	%	15.4	3.1	9.2	24.6	47.7	100	
Maintain humidity and temperature requirements in storage facility with fans and heater units.	N	3	0	1	4	57	65	1.3
	%	4.6	0.0	1.5	6.2	87.7	100	
Care for overwintering of container group plant materials.	N	3	0	1	13	48	65	1.4
	%	4.6	0.0	1.5	20.0	73.8	100	
Sales								
Describe to customers the purposes and qualities of plants for sale.	N	5	4	1	5	50	65	1.6
	%	7.7	6.2	1.5	7.7	76.9	100	
Identify customer needs and wants.	N	4	5	1	4	51	65	1.6
	%	6.2	7.7	1.5	6.2	78.5	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Take orders for sales by telephone.	N	2	3	3	2	55	65	1.4
	%	3.1	4.6	4.6	3.1	84.6	100	
Follow up sales to determine satisfaction and as a guide for determining next year's plantings.	N	0	3	2	2	58	65	1.2
	%	0.0	4.6	3.1	3.1	89.2	100	
Make cost estimates on customer orders.	N	0	3	4	2	56	65	1.3
	%	0.0	4.6	6.2	3.1	86.2	100	
Identify horticultural plants.	N	4	5	3	2	51	65	1.6
	%	6.2	7.7	4.6	3.1	78.5	100	
Solicit sales by telephone.	N	0	1	0	0	64	65	1.0
	%	0.0	1.5	0.0	0.0	98.5	100	
Use effective interpersonal relationships in dealing with customers.	N	4	4	2	2	53	65	1.5
	%	6.2	6.2	3.1	3.1	81.5	100	
Prepare advertising materials.	N	0	1	0	3	61	65	1.1
	%	0.0	1.5	0.0	4.6	93.8	100	
Use supplier advertising materials including catalogs.	N	0	0	4	1	60	65	1.1
	%	0.0	0.0	6.2	1.5	92.3	100	
Write up customer orders.	N	4	1	1	3	56	65	1.4
	%	6.2	1.5	1.5	4.6	86.2	100	
Prepare advertising materials including catalogs.	N	0	0	0	3	62	65	1.0
	%	0.0	0.0	0.0	4.6	95.4	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Use various types of advertising such as industry publication and mailing lists.	N	1	0	0	1	63	65	1.1
	%	1.5	0.0	0.0	1.5	96.9	100	
Advise customers on environmental requirements and shelf life of plants.	N	1	4	3	0	57	65	1.3
	%	1.5	6.2	4.6	0.0	87.7	100	
Send plant care instructions to retailers.	N	0	0	2	1	62	65	1.1
	%	0.0	0.0	3.1	1.5	95.4	100	
Records								
Keep records of receipts and expenses.	N	1	1	0	1	62	65	1.1
	%	1.5	1.5	0.0	1.5	95.4	100	
Make out and mail bills to collect accounts due.	N	0	2	0	0	63	65	1.1
	%	0.0	3.1	0.0	0.0	96.9	100	
Check credit references of customers.	N	0	1	0	1	63	65	1.1
	%	0.0	1.5	0.0	1.5	96.9	100	
Perform filing tasks.	N	1	1	0	1	62	65	1.1
	%	1.5	1.5	0.0	1.5	95.4	100	
Perform typing and mailing tasks.	N	0	1	1	0	63	65	1.1
	%	0.0	1.5	1.5	0.0	96.9	100	
Keep employee work records.	N	2	3	0	1	59	65	1.3
	%	3.1	4.6	0.0	1.5	90.8	100	
Prepare employee payroll.	N	0	0	0	1	64	65	1.0
	%	0.0	0.0	0.0	1.5	98.5	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Pay accounts payable.	N	0	0	0	2	63	65	1.0
	%	0.0	0.0	0.0	3.1	96.9	100	
Assist in records audit.	N	0	0	0	0	65	65	1.0
	%	0.0	0.0	0.0	0.0	100.0	100	
Prepare income tax and other government reports.	N	0	0	0	0	65	65	1.0
	%	0.0	0.0	0.0	0.0	100.0	100	
Keep annual depreciation schedule.	N	0	0	0	0	65	65	1.0
	%	0.0	0.0	0.0	0.0	100.0	100	
Keep customer credit records.	N	0	0	1	0	64	65	1.0
	%	0.0	0.0	1.5	0.0	98.5	100	
Use adding machine and/or other tabulation devices in balancing accounts.	N	2	3	0	1	59	65	1.3
	%	3.1	4.6	0.0	1.5	90.8	100	
Keep nursery crop production records.	N	3	3	2	2	55	65	1.4
	%	4.6	4.6	3.1	3.1	84.6	100	
Caluclate sales prices based on cost plus a percentage mark-up.	N	1	3	2	1	58	65	1.3
	%	1.5	4.6	3.1	1.5	89.2	100	
Processing and Shipment								
Quality sort prior to shipment.	N	11	7	3	7	37	65	2.2
	%	16.9	10.8	4.6	10.8	56.9	100	
Make out shipping labels and invoices.	N	2	4	4	3	52	65	1.5
	%	3.1	6.2	6.2	4.6	80.0	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Package orders for shipment.	N	10	3	6	7	39	65	2.0
	%	15.6	4.6	9.2	10.8	60.0	100	
Arrange transportation for shipment of plant materials.	N	1	2	2	2	58	65	1.2
	%	1.5	3.1	3.1	3.1	89.2	100	
Deliver plant materials to wholesaler and/or retailer.	N	1	5	7	2	50	65	1.5
	%	1.5	7.7	10.8	3.1	76.9	100	
Inventory								
Keep current inventory of plants and supplies for sale.	N	2	2	4	3	54	65	1.4
	%	3.1	3.1	6.2	4.6	83.1	100	
Check received merchandise against invoice listings.	N	3	0	7	10	45	65	1.6
	%	4.6	0.0	10.8	15.6	69.2	100	
Check invoices for math errors.	N	3	2	3	2	55	65	1.4
	%	4.6	3.1	4.6	3.1	84.6	100	
Take annual inventory for tax purposes.	N	1	1	2	9	52	65	1.3
	%	1.5	1.5	3.1	13.8	80.0	100	
Store received materials and supplies.	N	3	4	6	11	41	65	1.7
	%	4.6	6.2	9.2	16.9	63.1	100	
Arrange for transportation of plant materials and supplies.	N	1	1	2	3	58	65	1.2
	%	1.5	1.5	3.1	4.6	89.2	100	
Order seed, fertilizer, and/or plant materials.	N	0	1	1	2	61	65	1.1
	%	0.0	1.5	1.5	3.1	93.8	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Keep current inventory of repair parts, fertilizer, seed, and other supplies.	N	0	1	4	4	56	65	1.2
	%	0.0	1.5	6.2	6.2	86.2	100	
Maintenance								
Keep work, storage, and delivery areas neat and clean.	N	26	7	8	6	18	65	3.3
	%	40.0	10.8	12.3	9.2	27.7	100	
Clean and sharpen hand tools.	N	15	15	7	4	24	65	2.9
	%	23.1	23.1	10.8	6.2	36.9	100	
Perform light maintenance of business vehicle or tractor - oil level, tire pressure, battery and radiator water levels.	N	8	14	2	2	39	65	2.2
	%	12.3	21.5	3.1	3.1	60.0	100	
Perform minor tune-up of business vehicle or tractor by replacement of spark plugs and ignition points.	N	3	4	5	4	49	65	1.6
	%	4.6	6.2	7.7	6.2	75.4	100	
Change oil and grease business vehicle or tractor.	N	3	4	8	2	48	65	1.6
	%	4.6	6.2	12.3	3.1	73.8	100	
Repair storage bins and equipment storage buildings.	N	2	2	6	15	40	65	1.6
	%	3.1	3.1	9.2	23.1	61.5	100	
Perform electrical work on light switches and extension cords.	N	1	3	6	4	51	65	1.4
	%	1.5	4.6	9.2	6.2	78.5	100	
Paint nursery house and storage buildings.	N	1	2	5	16	41	65	1.6
	%	1.5	3.1	7.7	24.6	63.1	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Maintain and repair water valves, spigots, thermostats, and pumps.	N	1	4	5	2	53	65	1.4
	%	1.5	6.2	7.7	3.1	81.5	100	
Clean and oil electric motors.	N	0	4	4	4	53	65	1.4
	%	0.0	6.2	6.2	6.2	81.5	100	
Order repair parts for vehicles and/or other equipment.	N	1	3	5	6	50	65	1.4
	%	1.5	4.6	7.7	9.2	76.9	100	
Clean and repair dusters and sprayers.	N	4	0	8	4	49	65	1.[illegible]
	%	6.2	0.0	12.3	6.2	75.4	100	
Maintain and repair small gas engines (e.g. lawn mower, rototiller).	N	3	0	5	5	52	65	1.4
	%	4.6	0.0	7.7	7.7	80.0	100	
Maintain and install sprinkler heads, pipe nozzles, and other irrigation equipment.	N	8	4	6	4	43	65	2.0
	%	12.3	6.2	9.2	6.2	66.2	100	
Service heating pots and boilers.	N	1	1	2	2	59	65	1.2
	%	1.5	1.5	3.1	3.1	90.8	100	
Maintain and repair power tillers and cultivators.	N	1	2	7	4	51	65	1.4
	%	1.5	3.1	10.8	6.2	78.5	100	
Management								
Report and pay federal, state, and local taxes.	N	1	1	0	1	62	65	1.1
	%	1.5	1.5	0.0	1.5	95.4	100	
Understand and comply with business laws.	N	3	0	0	1	61	65	1.2
	%	4.6	0.0	0.0	1.5	93.8	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Administer social security and other employee benefit programs.	N	1	0	0	0	64	65	1.0
	%	1.5	0.0	0.0	0.0	98.5	100	
Identify labor needs.	N	0	1	1	3	60	65	1.1
	%	0.0	1.5	1.5	4.6	92.3	100	
Recruit employees.	N	0	1	1	1	62	65	1.1
	%	0.0	1.5	1.5	1.5	95.4	100	
Interview and select employees.	N	3	0	0	1	61	65	1.2
	%	4.6	0.0	0.0	1.5	93.8	100	
Designate employee work assignments.	N	5	5	3	1	51	65	1.6
	%	7.7	7.7	4.6	1.5	78.5	100	
Supervise employees.	N	10	4	5	3	43	65	2.0
	%	15.6	6.2	7.7	4.6	66.2	100	
Train new employees.	N	4	4	9	6	42	65	1.8
	%	6.2	6.2	13.8	9.2	64.6	100	
Evaluate employee performance.	N	2	0	2	1	60	65	1.2
	%	3.1	0.0	3.1	1.5	92.3	100	
Perform personnel actions such as promoting or firing.	N	0	0	1	0	64	65	1.0
	%	0.0	0.0	1.5	0.0	98.5	100	
Establish employee wages, hours, and working conditions.	N	0	0	1	0	64	65	1.0
	%	0.0	0.0	1.5	0.0	98.5	100	

CE 009 037

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Determine business credit needs.	N	0	0	0	0	65	65	1.0
	%	0.0	0.0	0.0	0.0	100.0	100	
Locate sources of, and secure credit.	N	0	0	0	0	65	65	1.0
	%	0.0	0.0	0.0	0.0	100.0	100	
Determine need for, and purchase comprehensive business insurance.	N	0	0	0	0	65	65	1.0
	%	0.0	0.0	0.0	0.0	100.0	100	
Select and purchase plants, fertilizer, and equipment.	N	0	2	1	0	62	65	1.1
	%	0.0	3.1	1.5	0.0	95.4	100	
Determine kinds and amounts of flowers and plants to stock.	N	0	1	1	2	61	65	1.1
	%	0.0	1.5	1.5	3.1	93.8	100	
Identify and select producers and suppliers of flowers, plants, and materials.	N	0	1	2	0	62	65	1.1
	%	0.0	1.5	3.1	0.0	95.4	100	
Establish and enforce safety regulations.	N	2	1	1	2	59	65	1.2
	%	3.1	1.5	1.5	3.1	90.8	100	
Allocate monies in preparing working budget.	N	0	0	0	1	64	65	1.0
	%	0.0	0.0	0.0	1.5	98.5	100	
Analyze the business enterprises on cost and return basis.	N	1	0	0	0	64	65	1.1
	%	1.5	0.0	0.0	0.0	98.5	100	
Participate in horticulture trade organizations.	N	0	0	0	1	64	65	1.0
	%	0.0	0.0	0.0	1.5	98.5	100	

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Plan business advertising.	N	0	0	0	0	65	65	1.0
	%	0.0	0.0	0.0	0.0	100.0	100	
Negotiate sales contracts.	N	0	0	0	1	64	65	1.0
	%	0.0	0.0	0.0	1.5	98.5	100	
Develop relationships with buyers to get new markets and secure sales agreements.	N	0	0	0	1	64	65	1.0
	%	0.0	0.0	0.0	1.5	98.5	100	

tended to be performed with a lesser frequency than was expected for all employees studied. These observations have important implications for establishing curricula that would prepare employees for this industry. Several questions should be raised in attempting to ascertain the necessity for such programs in Iowa and in various areas of the state. First, can employees be better trained for these occupations in a formal educational setting or on the job as they are employed? In many of the horticultural areas studied, the level of skill suggested in the competencies needed by employees makes it questionable whether educational programs should be established for such training. Second, if educational programs are established to train workers for this industry, should they be long-term or short-term programs? The seasonality of work experienced by employees and the great differences in competencies required and their level of performance within each phase of the horticultural industry suggests that a series of workshops, short courses, etc. might be most effective in preparing people for employment in this agricultural industry. Long-term programs, programs of one or two years of duration, could be used to develop those competencies common to all workers and that are used on a daily, weekly, or monthly basis by workers in their occupations. Such programs could be planned and conducted at both the secondary and post-secondary levels.

It was further observed that a large proportion (39%) of those employed in this industry were employed part-time. The percentage of part-time employees ranged from 65 percent in the landscape services and 53 percent in the nursery production areas to 20 percent in the highway and park management area. Such large numbers of part-time employees, in several of the phases of this industry, further suggests that programs be established tailored to the needs of each phase of the horticultural industry and that short-term programming efforts may be the most effective method of meeting the employment needs of this industry.

Analysis of the competencies identified for each phase of horticulture studied and the extent of performance required for each by employees suggests that each horticultural phase is a unique entity of its own having specific tasks that differentiate it from the other phases. When these competencies were studied further to develop a common core of competencies that could be used as a basis for curriculum planning, one quickly came to the conclusion that no such core of competencies could be developed. It was concluded that curriculum planning efforts should be directed toward specific phases of the horticulture industry and center on those most often performed competencies within each horticultural phase. Priority areas for planning curricula should be in the areas of farm and garden supply, retail floristry, and nursery production in view of the fact that these four areas employ approximately 67 percent of all horticultural workers in Iowa.

Page 2[illegible]6 was retyped at The Center for Vocational Education.

Table 30

Competencies Most Frequently Performed

by

All Nursery Production Employees

Competency		Daily (5)	Once a Week (4)	Once a Month (3)	Once a Year (2)	Never (1)	Total	Mean
Keep work, storage, and delivery areas neat and clean.	N	38	9	10	8	30	95	3.2
	%	40.0	9.5	10.5	8.4	31.6	100	
Water nursery stock.	N	36	12	5	3	39	95	3.0
	%	37.9	12.6	5.3	3.2	41.1	100	

While it may appear that the most appropriate approach in curriculum planning to serve this industry would be that of establishing specific programs geared to specific phases of this industry, introductory programs are needed and should be part of a total educational effort developed to serve the entire industry. These programs should stress the development of skills, understandings, and abilities in production, inventory control, sales, and customer relations. It is felt by the investigators that such program efforts can and should be provided at the secondary level and the findings of this study used as a basis for curriculum planning.